CALIFORNIA

Proposition 65 Warning

WARNING: Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. **Wash hands after handling.**

7400 tractor series

Models 7465-7475-7480

AGCO S.A. - Beauvais - France - RC B562 104 539
MASSEY FERGUSON is a worldwide brand of AGCO

Original Operator's Manual

January 2011
No. 4373009M1
Issue 1
7400
Dyna-Step
NA - English

Pre-delivery inspection

T000652

After completing this form, mail or fax a copy to the following address:
Product Reliability Group
P.O. Box 4300
Hesston, KS 67062
Fax Number: (620) 327-5713

Model: _____ **Dealer:** _____

Serial number: _____ **Dealer code:** _____

Serial number header: _____ **Location:** _____

Telephone Number: * _____

VERIFICATIONS							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
A1	Is the engine oil at the correct level (between nominal and maximum)? If incorrect, advise quantity added.						
A2	Is the transmission oil at the correct level (between nominal and maximum)? If incorrect, advise quantity added.						
A3	Is the auxiliary tank oil at the correct level (between nominal and maximum)? If incorrect, advise quantity added.						
A4	Are the oil levels of the left- and right-hand front final drives correct (between nominal and maximum)? If incorrect, advise quantity added.						
A5	Is the front axle oil at the correct level (between nominal and maximum)? If incorrect, advise quantity added.						
A6	Are the oil levels of the left- and right-hand rear final drives correct (between nominal and maximum)? If incorrect, advise quantity added						
A7	Is the clutch fluid level correct? If incorrect, advise quantity added.						

VERIFICATIONS							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
A8	Is the cooling system filled to the correct level (between nominal and maximum)? If incorrect, advise quantity added.						
A9	Is the DEF at the correct level in the tank? If incorrect, advise quantity added.						
A10	Are all the points identified in the Operator Instruction Book greased?						
A11	Are all the cab doors and openings properly adjusted?						
A12	Is the content of the tool box correct?						
A13	Is the documentation correct?						
A14	Do the seat adjustments and settings function correctly?						
A15	Does the seat belt function correctly?						
A16	Are all decals identified in the Operator Instruction Book present?						
A17	Is the paintwork correct?						

FUNCTION							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
B1	Are all the belts tensioned correctly?						
B2	Are the wheels set to the correct torque?						
B3	Does the start switch function correctly?						
B4	Do all the instrument panel functions operate correctly?						
B5	Are the batteries correctly charged?						
B6	Do the side lights function correctly?						
B7	Do the side lights, low beams, and headlights function correctly?						
B8	Do the front work lights function correctly?						
B9	Do the brake lights function correctly?						

FUNCTION							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
B10	Do the work lights mounted on the hand rails function correctly?						
B11	Do the roof work lights at the front and rear function correctly?						
B12	Do the work lights mounted on the fenders function correctly?						
B13	Do the work lights mounted on the steps function correctly?						
B14	Do the hazard warning lights function correctly?						
B15	Does the rotary beacon function correctly?						
B16	Does the horn function correctly?						

OPERATION							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
C1	Do the four-wheel drive front axle and all its automatic functions operate correctly?						
C2	Do the differential lock and all its automatic functions operate correctly?						
C3	Do all rear linkage functions including external controls operate correctly? (Check them with a 400 kg (882 lb) weight fitted to the linkage arms).						
C4	Do all front linkage functions including external controls operate correctly? (Check them with a 400 kg (882 lb) weight fitted to the linkage arms).						
C5	Does the pick-up hitch function correctly?						
C6	Do the auxiliary spool valves function correctly?						
C7	Do all PTO speeds, controls, and automatic functions operate correctly?						

OPERATION							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
C8	Do all functions of the DOT Matrix operate correctly?						
C9	Are the parameters for the controllers correct and identical to those indicated on the descriptive label?						
C10	Do the cab air conditioning and heating systems function correctly?						
C11	Do the front and rear windshield wipers function correctly?						
C12	Do the electric rear-view mirrors function correctly?						
C13	Do all the Datatronic 3 functions operate correctly?						
C14	Does the audio equipment function correctly?						
C15	Does the front axle suspension function correctly?						
C16	Does the cab suspension function correctly?						

ROAD TEST							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
D1	Does the engine react correctly to the control switches "A, B, +, and -"?						
D2	Do all the transmission ratios shift correctly?						
D3	Do the automatic transmission functions operate correctly?						
D4	Does the range shift switch function correctly?						
D5	Do all gears shift correctly while driving?						
D6	Does the steering function correctly?						
D7	Are the brakes fully operational and correctly balanced?						
D8	Does the differential lock function correctly?						

ROAD TEST							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
D9	Do the hand brake and ParkLock function correctly?						
D10	Does the trailer brake function correctly?						
D11	Are there any post-road-test leaks or component interferences from the engine? If so, supply full details.						
D12	Are there any post-road-test leaks or component interferences from the front axle? If so, supply full details.						
D13	Are there any post-road-test leaks or component interferences from the rear axle? If so, supply full details.						
D14	Are there any post-road-test leaks or component interferences from the transmission? If so, supply full details.						
D15	Are there any post-road-test leaks or component interferences from the hydraulic system? If so, supply full details.						

PREPARATION							
No.	**Question**	**Yes**	**No**	**Quantity of oil added**	**RTS**	**Part number**	**Comments**
E1	Adjust the track width according to the customer's requirements and tighten the wheels to torque.						
E2	Adjust the tire pressures according to the customer’s requirements.						

Other comments

Name of technician: _____

Signature:_____ **Date:** _____

Reminder After completing this form, mail or fax a copy to the address at the top of this document.

Foreword

We would like to welcome you to the ever-growing number of people who own a Massey Ferguson tractor; people who appreciate quality. We are proud of every tractor that leaves our factories, each being technically advanced and of high quality.

This Operator Instruction Book contains the specifications for your new tractor. Please ensure that all operators read the instructions and follow them carefully. The pages that follow contain vital information on your tractor; please read them carefully.

Your Massey Ferguson dealer will guarantee you quality servicing and will provide you with all the assistance you need. When it comes to servicing, remember that your dealer knows your tractor best and that he wants you to be completely satisfied.

Please leave this Operator Instruction Book in the tractor if resold. The subsequent owner will need the information it contains.

All information and specifications in this Book are up to date at the time of publication. However, our ongoing policy to improve our products obliges us to reserve the right to make alterations at any time without notice.

Please note that this Book relates to all models and refers to both standard and optional equipment. You may therefore find details relating to equipment that is not fitted on your tractor.

Massey Ferguson, Beauvais

7400 tractor series

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1

1.1 Locating serial numbers

1.1.1 Locating serial numbers

T004532

IMPORTANT: *Please quote the serial number of your tractor in all correspondence with your dealer or agent.*

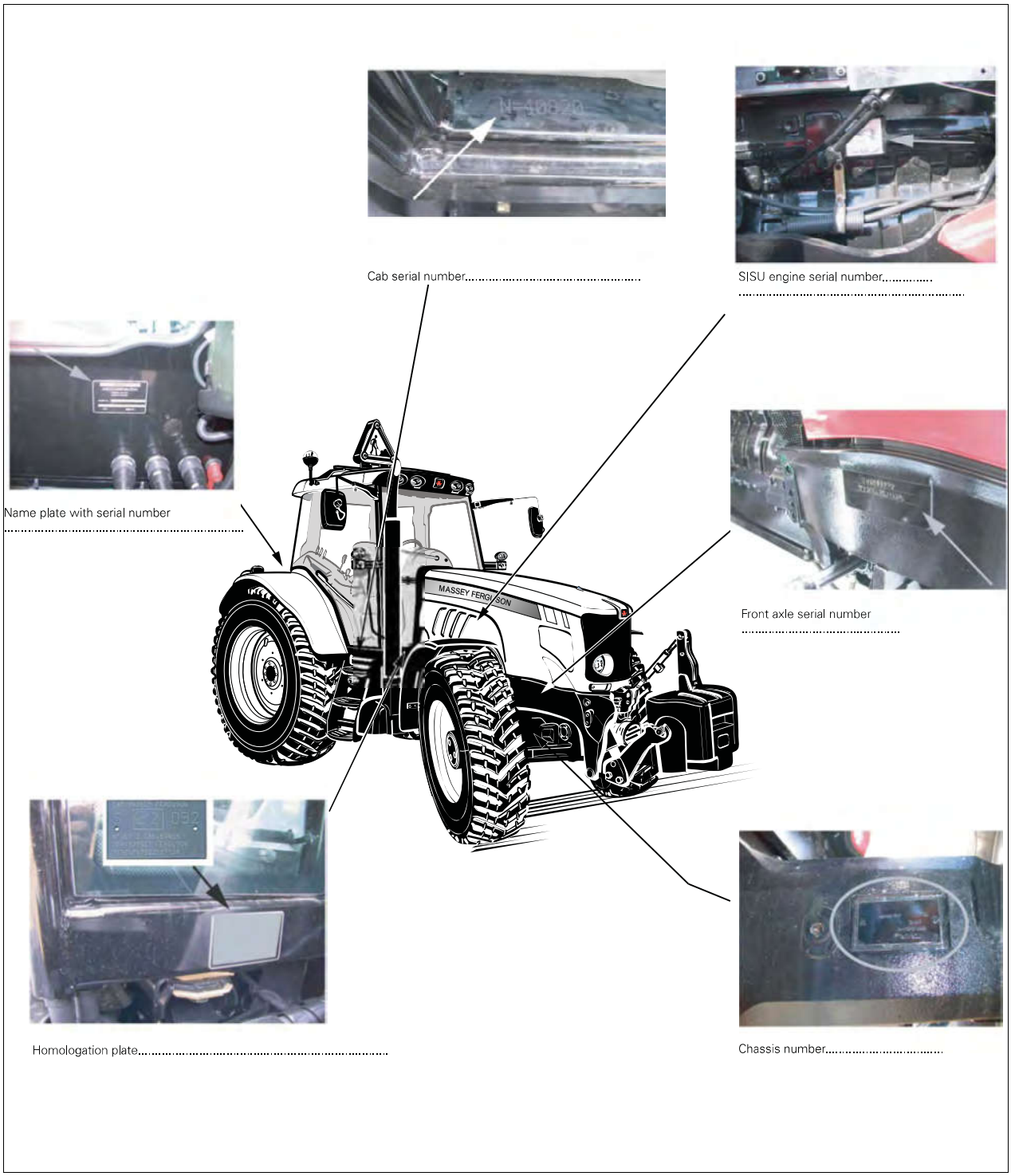

Fig. 1.

I011350

1

1.2 Your tractor identification details

1.2.1 Your tractor identification details

T000866

Model: _____

Serial number: _____

Engine serial number: _____

Owner's name: _____

Street: _____

Zip Code: _____

Town: _____

County: _____

Country: _____

Dealer code: _____

Tractor received from (check one of the following):

☐ Factory: ☐ Other dealer (transfer):

Notes: _____

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2

2.1 Introduction

2.1.1 Introduction - Safety instructions

T000867

Operator Instruction Book

NOTE: *This Operator Instruction Book is widely published and distributed and the availability of the attachments indicated, whether fitted to the basic tractor or as an accessory, may vary depending on the country or region in which the tractor is used. To find out which attachments are available in a given region, contact a Massey Ferguson dealer.*

The purpose of this book is to enable the owner and the operator to operate the tractor appropriately under normal conditions of use. Providing they follow the instructions carefully, the tractor will give many years of service in the Massey Ferguson tradition.
The commissioning of equipment by the Massey Ferguson dealer on the user's premises enables the dealer to ensure that these operating and servicing instructions are properly understood. Always consult the Massey Ferguson dealer if there is any part of this book that you do not understand. It is important that these instructions are understood and followed.
This book does not cover all operation and safety instructions relevant to the implements and attachments that may be fitted at the time of tractor delivery or later. It is essential that operators use and understand the Operator Instruction Books relating to these implements and attachments.

IMPORTANT: *This book must always be kept with the tractor. For extra copies, contact your Massey Ferguson dealer.*

This chapter in the Operator Instruction Book highlights certain basic safety-related situations which may be encountered during normal operation and servicing of the tractor and provides the information needed to handle these situations.
This chapter supplements any safety instructions given in other chapters of this book.
It may be necessary to take additional precautions, depending on the implements and accessories used and the working conditions on-site or in the servicing area. Massey Ferguson can under no circumstances exercise direct control over the commissioning, operation, inspection, lubrication, or servicing of the tractor. It is therefore YOUR responsibility to take suitable safety precautions in such areas.

WARNING:
It is your responsibility to read and understand the instructions that appear in this chapter before using the tractor. They must then be strictly adhered to throughout the working day.

Servicing, spare parts, accessories and conditions of use

Daily servicing should become a routine, and a logbook of operating hours should be kept.
When spare parts are required, it is important to use only genuine Massey Ferguson parts. Massey Ferguson dealers supply genuine parts and can offer advice concerning their fitting and use. The use of lower quality parts may cause serious damage. Customers are advised to purchase their spare parts only from an approved Massey Ferguson dealer. In the same way, you must only use accessories specifically adapted to your tractor.
Owing to the considerable variation in operating conditions, it is not possible for the manufacturer to formulate complete or absolute assertions in its publications concerning the performance or operating methods of its machines or to accept liability for any loss or damage which may result from such assertions or possible errors or omissions.
If the tractor is to be used in abnormal conditions which could cause damage (use in deep water or in paddy fields for instance), you should consult your Massey Ferguson dealer to obtain special instructions to prevent the warranty from becoming void.
These tractors are designed only for usual farming activities (intended use). Use for any other activity is considered to be contrary to the intended use.
Strict compliance with repairs, servicing, and operating conditions as specified by Massey Ferguson are an essential component of the intended use.

IMPORTANT: *Massey Ferguson accepts no responsibility in the event of damage to equipment or personal injury resulting from improper use.*

The tractor must only be used, serviced and repaired by personnel who have full knowledge of its specific features and who are aware of the applicable safety measures (prevention of accidents).
Customers are strongly advised to contact a Massey Ferguson dealer in the event of after-sale problems and for any adjustments which may be necessary.

2.2 Safety — Symbols and terms

2.2.1 Safety — Symbols and terms

T000869

Signal

This safety alert symbol means CAUTION! BE ALERT! YOUR SAFETY DEPENDS ON IT!
The safety alert symbol identifies important safety notices on machines, safety signs, in instruction books or elsewhere. When you see this symbol, be alert to the risk of injury or death. Follow the instructions in the safety notice.

SAFETY is paramount! Why?
- ACCIDENTS DISABLE AND KILL
- ACCIDENTS ARE COSTLY
- ACCIDENTS CAN BE AVOIDED

Terms

The words DANGER, WARNING or CAUTION are used with the safety alert symbol. It is essential to learn how to recognize these safety messages and to follow the recommended safety measures and instructions.

DANGER:
indicates an imminently hazardous situation which, if not avoided, will result in DEATH or VERY SERIOUS INJURY.

WARNING:
indicates a potentially hazardous situation which, if not avoided, could result in DEATH or SERIOUS INJURY.

CAUTION:
indicates a potentially hazardous situation which, if not avoided, may result in MINOR or MODERATE INJURY.

The terms IMPORTANT and NOTE are not directly related to personal safety, but are used to provide additional information and advice on the operation or maintenance of equipment.

IMPORTANT: *identifies specific instructions or procedures which, if not strictly applied, could damage or destroy the tractor, its equipment or the surrounding area.*

NOTE: *identifies points of particular interest for the most effective and suitable operation or repair.*

2.3 Safety signs and instructions

2.3.1 Checking and replacing the safety signs and instructions

T000871

WARNING:

Never remove or obscure the safety signs and instructions.

Replace any safety signs and instructions that are illegible or missing. Replacement signs are available from the dealer in the event of loss or damage. If a second-hand tractor has been purchased, check that all of the safety signs and instructions are correct, legible and in the correct position. To do this, refer to the section on the presentation and location of these signs.

2.3.2 Presentation and location of the safety signs and instructions

T001270

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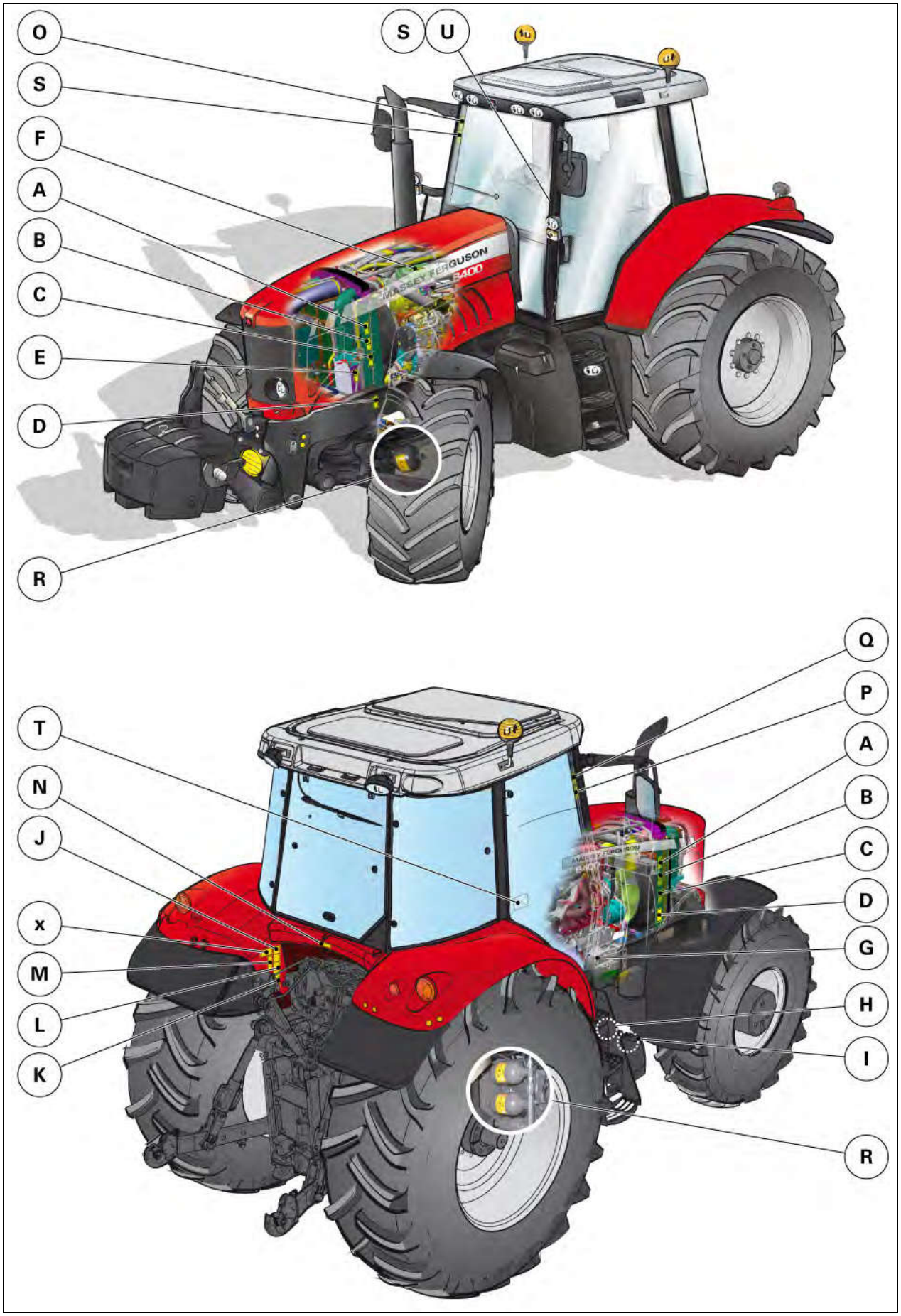
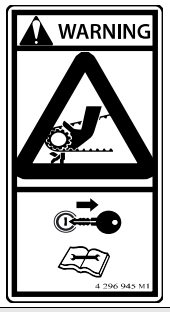
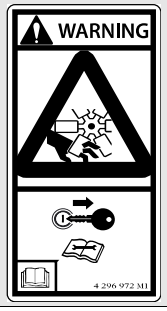
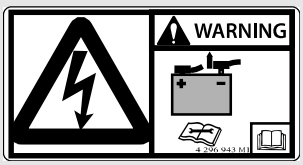
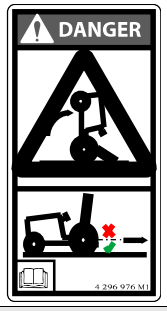


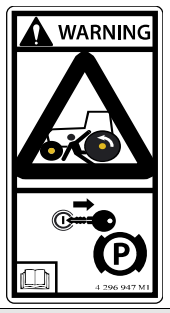
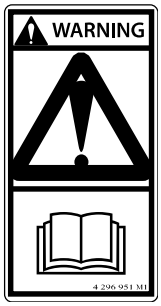
Fig. 1.

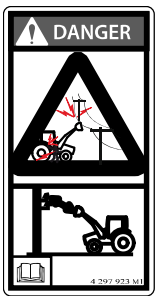
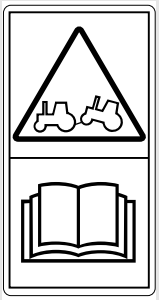
I012913

	– **4296945M1** ((A) *fig. 1*) – **WARNING:** Entanglement hazard in belt drives. Keep hands clear of rotating parts and belts while engine is running. Switch off the ignition and remove the key before working on the tractor.
	– **4296972M1** ((B) *fig. 1*) – **WARNING:** Shearing hazard – engine fan. Keep your hands away from the fan and the belts when the engine is running. Shut off engine and remove key before performing maintenance or repair work.
	– **4296968M1** ((C) *fig. 1*) – **WARNING:** Burn hazard – hot surfaces. Keep away from hot engine components when engine has been running. Shut off engine, remove key, and wait for system to cool before performing maintenance or repair work.
	– **4296953M1** ((D) *fig. 1*) – **WARNING:** Pinch point hazard Keep clear of axle suspension system when engine is running. Switch off the ignition and remove the key before working on the tractor.
	– **4296986M1** ((E) *fig. 1*) – **WARNING:** Pinch point hazard due to moving parts Keep hands clear of linkage when pivoting coolers
	– **4298646M1** ((F) *fig. 1*) – **WARNING:** Scalding hazard – high pressure steam or hot water. Shut off engine, remove key, and wait for the system to cool before removing the radiator cap. Remove the filler cap with extreme care.
	– **4296982M1** ((G) *fig. 1*) – **DANGER:** Runaway machine and runover hazards. Only start the engine when seated in the seat with the PTO disengaged and the transmission in the neutral position. DO NOT short across starter terminals to start engine.

2

	– **4296943M1** ((H) *fig. 1*) – **WARNING:** Electrical shock hazard – risk of personal injury and component damage. Remove negative (ground) cable from battery before removing starter solenoid cover and before servicing electrical system.
	– **4296980M1** ((I) *fig. 1*) – **DANGER:** Lead-acid battery hazards o Explosive gases; o Corrosive liquid (sulphuric acid); Keep away from all open flames or sparks. Shield eyes when working on or around battery. Read safety and operating instructions in the Operator Instruction Book for further information.
	– **4296955M1** ((J) *fig. 1*) – **WARNING:** Driveline separation hazard, which may result in personal injury and machine damage. Make sure drawbar / 3-point hitch is in correct position and check length of PTO driveshaft when attaching PTO-driven equipment. See Operation section of manual for detailed information.
	– **4296976M1** ((K) *fig. 1*) – **DANGER:** Rear overturn hazard, which may result in personal injury or death. Pull only from approved drawbar or lower links of 3-point hitch at horizontal position or below. Never pull from above rear axle centerline.
	– **4296978M1** ((L) *fig. 1*) – **DANGER:** Entanglement hazard – PTO driveline. Stand clear of rotating shafts. Keep all driveline, tractor, and equipment guards in place during operation.
	– **4296970M1** ((M) *fig. 1*) – **WARNING**: Crushing hazard between tractor and implement. Stand outside of tractor tire when using external controls for 3-point hitch. Do not stand between tractor and implement.

	– **4297149M1** ((N) *fig. 1*) – **WARNING:** Falling hazard Do not step on PTO shield.
	– **4296947M1** ((O) *fig. 1*) – **WARNING:** Runaway machine and runover hazards. Shut off engine, remove key, and apply park brake before leaving the tractor unattended.
	– **4296959M1** ((P) *fig. 1*) – **WARNING:** Falling and crushing hazard. Wear the seat belt when using the instructor seat Read the Operator Instruction Book for more information: – The instructor seat is not intended for use by children. – The instructor seat must not be used to transport passengers. – The instructor seat must only be used by service personnel or for training purposes.
	– **4296951M1** ((Q) *fig. 1*) – **WARNING:** Avoid personal injury Read the Operator Instruction Book for safety information and operating instructions before operating the tractor.
	– **4350917M1** ((R) *fig. 1*) – **DANGER:** Explosion hazard – contents under pressure. Fill accumulators with nitrogen only – other gases may explode. See Operation section of manual for detailed information.

	– **4297923M1** ((S) *fig. 1*) – **DANGER:** Electrocution hazard Tractors fitted with a front loader: Exercise extreme caution to avoid coming into contact with power lines.
	– **4349217M1** ((T)*fig. 1*) – **WARNING:** Towing – Carefully read the specific instructions from the Operator Instruction Book before towing the tractor.
	– **4350592M1** ((W) *fig. 1*) – **WARNING:** Long axle shafts. Remain at a safe distance from persons and objects when driving with long axle shafts.

2.4 General safety instructions

2.4.1 Awareness of the safety instructions and symbols

T000880

Remember that you alone are responsible for safety. Good safety practices protect not only you, but also bystanders. Before using the tractor, study the instructions given in this book with care, as well as all of the safety signs and instructions fixed to the tractor. Make them an integral part of your safety procedure. Also note all the usual protective measures which should be taken when working and, above all, don't forget
Safety depends on you You can prevent accidents which could cause serious injury or death.

WARNING:
In some of the illustrations in this book, the safety panels and guards have been removed for reasons of clarity. Never use the tractor if these parts are not in place. If some of these parts have been removed for repair purposes, they must be refitted before use.

2.4.2 Operator familiarity in the use of the tractor

T000881

– ***WARNING:***
The operator must not drink alcohol or take any medication that may affect his concentration or co-ordination. If taking medication, whether prescribed or not, the operator must seek medical advice with regard to his ability to operate machinery safely.

To be able to use your tractor, it is first necessary:
- to be familiar with operating an agricultural tractor
- to have been trained in the operation of the tractor that you have just purchased
- to have read and understood this entire book — always consult the dealer as soon as there is any doubt or lack of understanding *fig. 1*
- find out about the rules and safety regulations applicable to the work you are doing. Some regulations specify that no one under the age of 16 may operate power machinery, for example. This includes tractors. It is your responsibility to know what these regulations are and to observe them in the operating area or situation. These rules include, but are not limited, to the safety instructions relating to correct operation of the tractor as described in this book.

– Do not allow children or unqualified persons to operate the tractor.

– Do not allow children to use the instructor seat.

– The instructor seat is only intended for short periods of use.

Fig. 1. I002903

2

– **WARNING:**
In poor conditions, slow down and be extra careful, and engage 4-wheel drive if fitted.

It is important to have good knowledge of the operation of the tractor as well as all of its accessories and attached implements.
Remember that rain, snow, ice, loose gravel or soft ground can change the performance of the tractor.

2.4.3 Filling the fuel tank

T001555

– Always switch off the engine before filling up.
– Do not smoke while refueling the tractor. Keep away from open flames *fig. 2*.

Fig. 2. I002861

2.4.4 Getting into and out of the cab

T000883

– Always use three-point contact with the tractor and face the tractor when you get on or off it. (Three-point contact means that both hands and one foot or one hand and both feet are in contact with the tractor at all times when getting on and off).
– Clean your shoes and wipe your hands before getting on the tractor.
– Use handrails, grab handles, ladders or steps (if fitted) when getting on and off.
Do not use the control levers as a handhold.
– Do not step on pedals when getting in or out.
– Never attempt to mount or dismount a moving tractor.
– Never jump off a tractor when it is running except in an emergency.

2.4.5 Mandatory procedure before dismounting the tractor

T000902

Before getting out of the cab, whether during the course of or at the end of the working day, always:

1. Immobilize the tractor by applying the parking brake or engaging ParkLock in the locked position (closed padlock symbol) (depending on option).
2. **DANGER:**
Place the reverse shuttle lever in neutral position.
3. Disengage the front and rear PTO.
4. Lower the implements to the ground.

5. Turn off engine.
6. Remove the ignition key.

2.5 Special safety instructions for preparing the tractor for use

2.5.1 Protective clothing

T000873

Wear all the protective clothing and equipment with which you are provided or which is appropriate for certain working conditions *fig. 1*.

For example, you may need:
- A safety helmet
- Goggles or a face shield
- Ear protection
- A respirator or filter mask
- Inclement weather clothing
- Reflective clothing
- Gloves suitable for the work to be carried out
- Safety footwear

DANGER:
Do not wear loose clothing, jewelry or other items and tie up long hair which could catch on controls or other parts of the tractor.

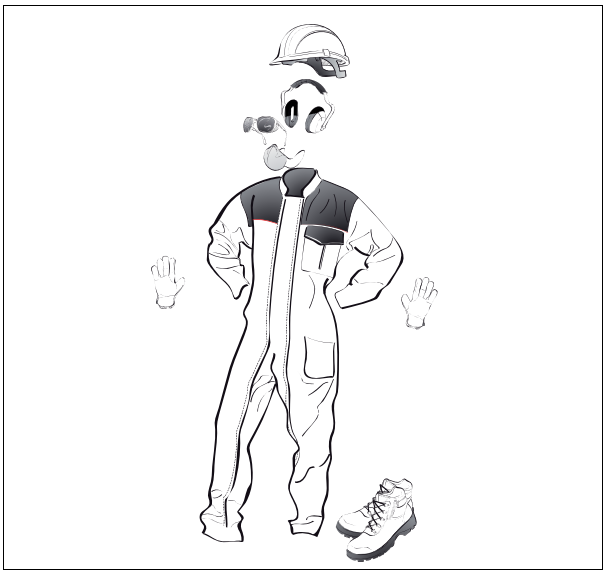


Fig. 1. I002858

2.5.2 Activated carbon filter information

T011579

WARNING:
Due to the risk of contaminants entering the cab when the door is opened to enter or exit, use of a carbon filter is intended to supplement but not necessarily replace the use of personal protective equipment when operating in an environment containing aerosols and/or vapors, such as pesticides.
The specific chemical manufacturer's instructions regarding personal protective equipment (PPE) must be followed. If the cab being fitted with this filter does not already have a safety decal like the one included with this filter, install the safety decal in a prominent place inside the cab in view of the operator.

This filter is designed to reduce the concentration of aerosols and vapors entering the cab. To be effective, it must have an effective seal to prevent leakage around the filter and must be used in a cab air system that does not have leaks, especially in the zone between the filter and the fan. In addition, the cab and its ventilation system must be capable of maintaining a positive pressure inside the cab and an air flow of at least 30 cubic meters per hour (18 cubic feet per minute).
The cab with carbon filter is intended to be used as only one part of a managed system of occupational health and safety, as noted below:

Operator Enclosures as Part of an Occupational Health and Safety Management System (OHSMS)
Many self-propelled agriculture vehicles have operator enclosures (cabs) for comfort and protection of the operator and riders. The cab can provide an effective physical barrier between the occupants and the environment, but that barrier must, by necessity of occupant respiration, allow air to enter and exhaust the cab. This requirement is met by the cab's heating, ventilation and air-conditioning (HVAC) system.
The HVAC system should employ a filter through which air entering the cab is first passed for contaminant reduction. Filters should also be provided in the recirculation air-stream to reduce air-borne contaminants already in the cab air space. In either application, these filters must be designed specifically for the HVAC system within which they are operating. The filters must also incorporate the correct media required to remove the specific air-borne contaminant for which it is being employed.

For such applications, the HVAC system must be of robust design, manufacture and maintenance. In such a system, fresh air and cab pressurization requirements are provided by an air supply drawn through a filter with negligible filter bypass.
Even with an appropriate cab and HVAC system, there are other opportunities for contaminates to enter the cab. While outside the cab, a person can become contaminated on his/her body or clothing. Contaminated objects can be brought into the cab. Another potential for cab contamination exists when doors or windows are open in a contaminated environment.
In any case, whenever the cab interior has been contaminated, the effectiveness of the cab to provide contamination protection will be diminished. Health and safety for agricultural machine operators as well as others working in, on, or around these machines can only be addressed through a comprehensive program.
Such a program is defined as an Occupational Health and Safety Management System (OHSMS). While cabs may be used as an effective engineering control within an OHSMS, this is not intended to imply that the cab alone is appropriate for any specific application.
That determination can only be made by those responsible for the OHSMS in a specific application. It is the responsibility of those charged with managing the use of the vehicle on which the cab is attached to define and manage an appropriate OHSMS, and ensure that all federal, state, and local regulatory requirements are followed.
Cabs should not be used as a replacement for any other engineering control or PPE that has been specifically required by federal, state, or local regulatory authorities.

Hierarchy of Controls
The Hierarchy of Controls, in their preferred order of action:
1. Elimination
2. Substitution of less hazardous materials, processes, operations, or equipment
3. Engineering controls
4. Warnings
5. Administrative controls
6. Personal protective equipment (PPE)

Continuous Improvement Cycle
Cabs should only be used to control operator air contaminant exposures within an OHSMS. This management system must consider occupational safety and health as a continuous improvement cycle that includes these on-going processes:
1. Management, Leadership, and Employee Participation: This step in the cycle involves the formulation of the management system, the establishment of policy, statements of responsibility, and the integration of the employees into the management system.
2. Planning: This step is based on initial and going reviews of the management system and numerous factors affecting occupational safety and health within an organization. Included in these reviews is a review of the hazard, risks and controls, and data collected to evaluate the hazards and the efficacy of the control measures. In explanatory comments, exposure measurements are included as part of the assessment processes. The results of audits and measurements are also to be reviewed.
3. Implementation and Operation: This section describes the organization components of an occupational safety and health program. It describes the hierarchy of controls mentioned above and several broad classes of management function. Among these requirements are employee training and evaluation of employee training. Furthermore, this section requires a written, clearly documented occupational safety and health program.
4. Evaluation and Corrective Actions: The section specifically requires management processes to monitor and evaluate hazards, risks, and their controls. Explanatory comments note that this includes quantitative measures of worker exposure. Practically, this involves physically testing the efficiency of the cab being used as an engineering control within an OHSMS.
5. Management System Review: Management is required to review the management system to ensure its suitability, adequacy, and effectiveness. This cycle includes provisions for exposure monitoring and the monitoring of control measure performance. It is the responsibility of the manager of the safety and health program to determine how worker exposure to air contaminants and other hazards are to be controlled. It is also the responsibility of this manager to take whatever actions are needed to control workplace hazards. This includes but is not limited to exposure assessment, audits of various programs such respiratory protection, ventilation system maintenance, etc.

Limitations of Cabs Used in Hazardous Environments:

While it may seem that respiration (breathing) exposure would present the greatest risk for personal exposure to contaminants, this is not the case when working with pesticides. The most prevalent method of exposure for applicators and those working around agricultural pesticides is through dermal (skin) contact.
Dermal contact with contaminants may occur directly from air-borne contaminants. It may also happen when contaminants are transferred from one object to another or when air-borne contaminants settle on objects that are subsequently contacted. Any surfaces in or out of the cab that have been contaminated are potential hazards for dermal exposure.
Within the cab, seats, upholstery, controls, and other surfaces that become contaminated will pose such a hazard. In addition to dermal exposure, a contaminated cab interior will also pose a respiration hazard as the contaminant may, after settling on a surface, become air-borne once again whereby it may be inhaled.
Recirculation filters can be used to help reduce these contaminates from the cab interior air space. When a vehicle is operated in an environment where air-borne contaminants exist, the cab can be an effective engineering control for reduction of exposure risk to persons within it.
In order for a cab to be used for this purpose, it must be of appropriate design. It must also be manufactured, maintained, tested, and operated according to the specific requirements defined by evaluation of the hazards.
No cab should ever be considered an effective engineering control unless it has been qualified as such within a comprehensive OHSMS. While the cab manufacturer can design and manufacture a cab to physical specifications, the cab manufacturer cannot qualify the cab as an appropriate engineering control for any specific application.
Site-specific information is needed to evaluate the appropriateness of control measures. To use the cab to control hazards, the managers of the OHSMS must carefully consider and evaluate the effectiveness of all engineering controls in their specific application.

The Cab as an Engineering Control
The engineering control requirements of the respiratory protection regulation may be fulfilled by the application of a cab, but this can only be done properly within an OHSMS. Elements of such a program are:

1. Assessment of the hazard with identification of the risk involved.
2. A survey of the machine and the cab involved in the hazardous operation.
3. Reviewing the cab ventilation system and the filter to ensure the filter provides the reduction in contaminants required.
4. Defining how long the filter can be used in this application.
5. Testing the cab ventilation system to ensure it provides the protection required for the operation to be performed. This also includes a review of any monitoring equipment to ensure it is working properly.
6. Repair and/or replacement of any defects or defective equipment found.
7. Retesting of the cab air system as required.
8. Recording in the appropriate log book all information regarding the test results, and repairs and replacement of parts and/or components.
9. Assessment of the effectiveness of the program at a specified time in the cycle of the activity.

2.5.3 Safety devices and items

T000874

Ensure that all safety devices and items are fitted as required and are in good condition.

WARNING:
The location of all these safety devices and items must be known and their use mastered. Never take off, remove or disconnect any of them.

Standard safety devices and items according to country regulations

- ROPS (Roll Over Protective Structure)
- Seat belt
- Power take-off guard
- SMV emblem
- Signalling lights
- Safety signs
- Fire extinguisher
- First aid kit

WARNING:
Also make sure you know the emergency numbers.

Fig. 2. I002859

Additional devices and items

Depending on the work to be carried out, other safety devices and items may be required, for example, guards, additional lights and signs.

2.5.4 Checking the tractor

T000872

Check the tractor and ensure that all systems are in good operational condition before beginning the working day. Pay particular attention to the points mentioned below.

- Check for loose, broken, missing or damaged parts. Ensure that everything has been properly repaired.
- Check that the seat belt is in good condition. If it is not, replace it.
- Check that implements are correctly installed.
- Check that the PTO output speed is in keeping with the implement PTO input speed.
- ***WARNING:***
  An unbalanced tractor could overturn and cause serious injury or death. Ensure that front frame counterweights, wheel weights and wheel ballasts are used as recommended by the manufacturer. Do not add extra counterweights to compensate for an overloaded tractor; the load must be reduced instead.

  Check to ensure that the tractor is correctly balanced.
- Check the condition and pressure of tires (absence of cuts and bulges). Replace worn or damaged tires.
- Check the correct operation of the brake pedals and the parking brake. Adjust if necessary.
- Ensure that all PTO shaft locking devices are engaged.
- Ensure that the tractor PTO guard and the shaft guards are in place and operating correctly.

– **WARNING:**
Fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious physical injury, blindness or death.
Leaks of pressurized fluid may not be visible. Use a piece of cardboard or wood to detect leaks. DO NOT USE YOUR BARE HANDS. Wear safety goggles for eye protection. If any fluid penetrates the skin, seek medical advice within a few hours from a doctor familiar with this type of injury .

WARNING:
Release the pressure of the hydraulic or fuel systems before disconnecting them.

Check the hydraulic system for the tractor and the implement as well as the tractor fuel system: Correct tightening of all the unions; check that there is no damage to the lines, pipes, or hoses; ensure that the hydraulic systems do not cross one another.
Have any leakages or damaged parts repaired or replaced.

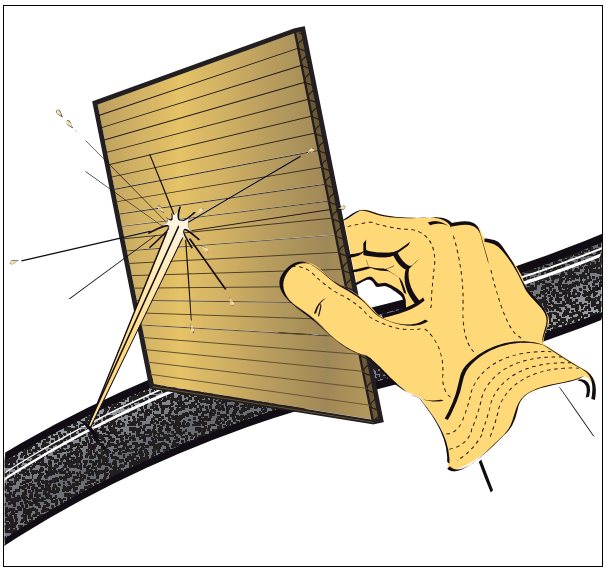


Fig. 3. I002860

– **WARNING:**
The liquid cooling system builds up pressure as the temperature increases. Stop the engine and let the system cool before removing the radiator cap.

Check the engine cooling system and add coolant if required.

– All maintenance procedures must have been complied with.

– Check that the weight of the tractor/implement assembly is less than the tractor total permissible load.

2.6 Specific safety instructions for starting the tractor

2.6.1 Protection of persons other than the operator

T000884

1. Before starting up, walk all the way around the tractor and any attached equipment. Ensure that no one is under it, on it or close to it.
2. Warn in advance any persons nearby that the tractor is about to start.
3. Only start up if there is nobody in the vicinity of the tractor/implement assembly. Pay particular attention to looking out for children.

2.6.2 Start up safely

T000885

General instructions

– ***WARNING:***
Before starting the engine, ensure there is plenty of ventilation in the area. Do not operate the engine in an enclosed space. The exhaust fumes may cause asphyxiation.

– Always start the engine from the operator's seat.
– Adjust the seat.
– For road use, ensure that the tractor brake pedals are locked together.
– Fasten the seat belt.
– Check that the parking brake is applied or that ParkLock is engaged.
– Place the reverse shuttle lever in neutral position and deactivate the PTO controls.
– Follow the start-up procedures described in the chapter Operation of this book.

– ***DANGER:***
Start the engine with the ignition key, from the operator's seat only. Do not attempt to start the engine by short-circuiting the starter terminals: the tractor may start in gear and this could cause serious injury or death to anyone in the vicinity fig. 1.

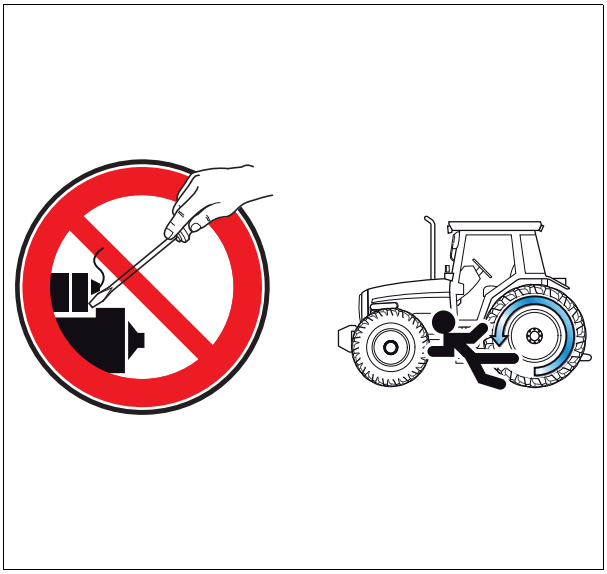


Fig. 1. I002863

2

Starting assistance

WARNING:

Never use any starter fluid or aerosol sprays. This could cause an explosion and the risk of very serious injury.

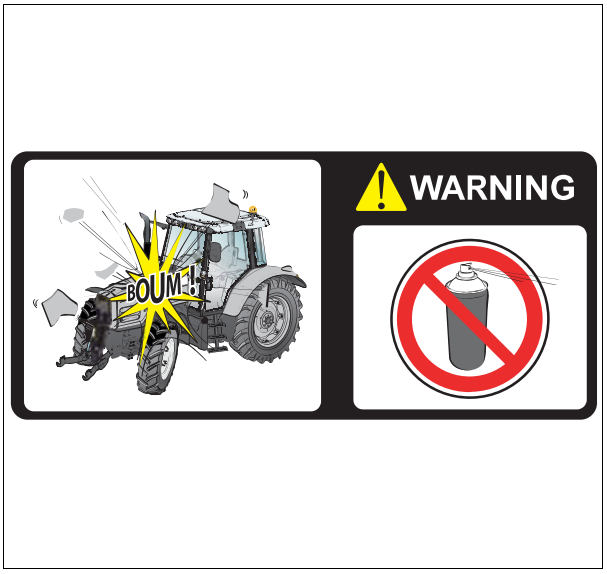


Fig. 2. I002864

2.6.3 Checks to be carried out after start-up

T000886

Controls and indicator lights

After having started the engine, check all the controls and all the indicator lights again. Ensure that everything is functioning correctly.

WARNING:

In case of malfunction of a control or an indicator light, resolve the problem before using the tractor.

Mastering of the tractor

Move slowly until you are sure that everything is operating correctly. Be certain that you have full control of the steering and brakes. If the differential is locked, unlock it before continuing your route.

2.7 Specific safety instructions for using the tractor

2.7.1 General instructions

T000875

- Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
- Never exceed the tractor total permissible weight.
- Always consider the way in which the tractor is to be used and the fact that the center of gravity of the tractor/implement assembly changes according to the load being transported or towed.
- ***WARNING:***
  An unbalanced tractor could overturn and cause serious injury or death. Ensure that front frame counterweights, wheel weights and wheel ballasts are used as recommended by the manufacturer. Do not add extra counterweights to compensate for an overloaded tractor; the load must be reduced instead.

  Check to ensure that the tractor is correctly balanced.
- Check that the PTO output speed is in keeping with the implement PTO input speed.
- Keep all parts of your body inside the safety zone defined by the cab or by the protective structure for platform tractors.
- Operate the controls smoothly — do not jerk the steering wheel or other controls.
- Always operate the controls from the operator's seat.
- Keep a firm grip on the steering wheel at all times, with your thumbs clear of the spokes when driving the tractor.
- Operate the tractor smoothly — avoid jerky turns, starts or stops.
- Do not turn at high speed.
- Avoid driving close to ditches and banks.
- Avoid taking slopes that are too steep.
- Reduce speed when negotiating turns and slopes and on rough, slippery or muddy surfaces.
- Carefully observe the areas surrounding the route.
- Ensure you have adequate clearance in all directions for the tractor and the implement.
- When using chemicals, follow the chemical manufacturer's instructions for use, storage and disposal carefully.
- Adapt the tractor speed according to visibility, weather conditions and the type of terrain.
- ***WARNING:***
  If a part breaks, loosens or does not operate correctly:
  - ***stop work***
  - ***turn off the engine***
  - ***check the machine and make the necessary adjustments and repairs before resuming work.***

- ***DANGER:***
  Do not attempt to unplug the hydraulic connections or adjust an implement with the engine running or the PTO in operation. To do so may result in serious injury or death.

2.7.2 Protection of persons other than the operator

T000876

2

– ***WARNING:***
A tractor is a machine with a single operator.
Do not permit anyone fig. 1 to ride on the tractor or implements, including trailers, unless the implements are specially designed to carry passengers during field work. In the latter case, transport is permitted only for field work, but not for travelling on the road.
In all cases, never allow a child to ride on the tractor or implements.

Fig. 1. I002865

– When operating, always pay attention to the environment of the tractor/implement assembly.
– Never lift loads above someone.
– Do not allow anyone to stand or pass in front of, under or behind an implement *fig. 2*.

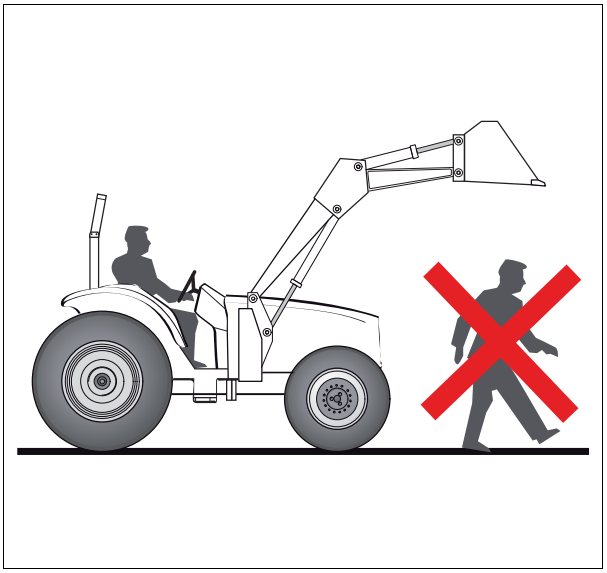


Fig. 2. I002866

– Do not allow anyone to stand between the tractor and the implement.
– Keep others away from the working area.

2.7.3 Overturning

T000877

Overturning angle

DANGER:
For your safety, never exceed the maximum angle limits listed in the table below.

NOTE: *These angle limits assume a maximum oil level.*
It is recommended to fill up the oil by 15 l (4.0 gal (US)) when working on slopes of maximum gradient.

Models	Maximum angle: roll/pitch/combined
7465/7475/7480	25°/27°/17°
7485/7490/7495/7497/7499	25°/27°/17°

Procedure to follow if the tractor overturns

If the tractor should overturn, keep the seat belt fastened, hold the steering wheel firmly, and do not attempt to leave the seat until the tractor has come to a complete stop *fig. 3*. For tractors fitted with a cab, if the doors are obstructed, leave through the rear window or roof hatch.

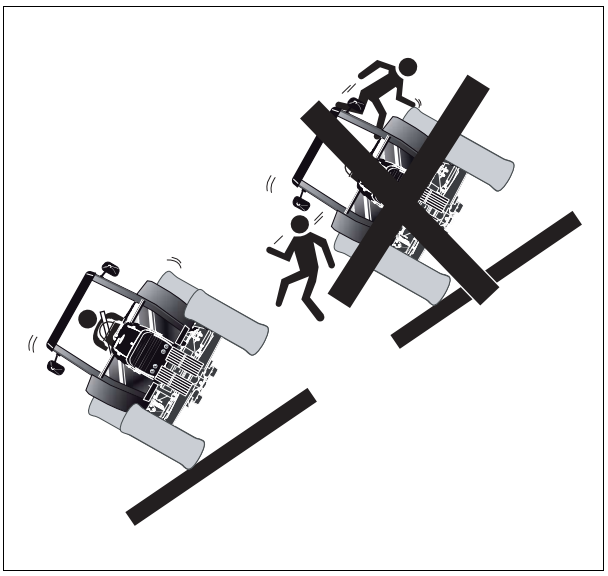


Fig. 3. I002867

Preventing a lateral overturn

- Set the track width to the most appropriate width for the work being carried out.
- Lock the brake pedals together before driving at transport speed.
- Adapt the tractor speed according to visibility, weather conditions and the type of terrain.
- If the tractor is fitted with a front-end loader, carry the bucket and load as low as possible.
- Make wide turns at reduced speed.
- Do not allow the tractor to bounce as this may cause you to lose control.
- Never exceed the tractor total permissible weight.
- Do not brake suddenly. Apply brakes smoothly and gradually.
- ***WARNING:***
  Do not disengage the clutch or attempt to shift gear after you have started downhill.
  When driving down a slope, use the engine brake to slow the tractor down and choose the same gear ratio as used when climbing a slope.
- Engage four-wheel drive (if fitted) to enable four-wheel braking.
- Do not work near the edge of ditches and banks as there is a risk of them collapsing. The tractor must always be kept a distance from the edge that is equal to or greater than the height of the bank or ditch *fig. 4*.

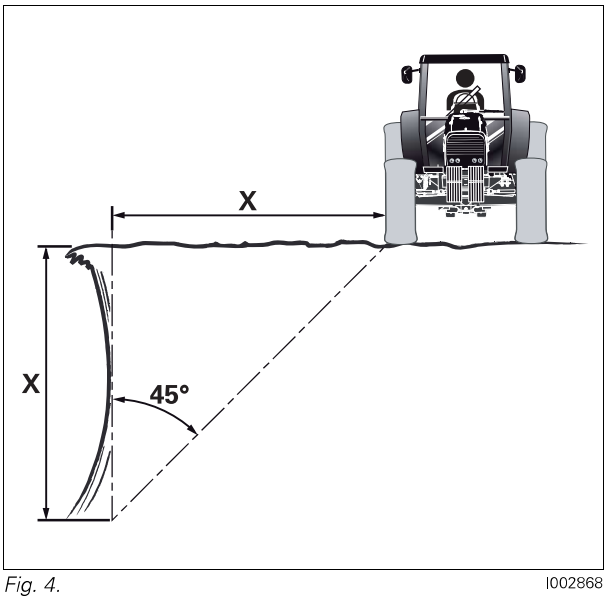


Fig. 4. I002868

- Preferably, climb or descend a slope in a straight line, but do not cross it. When this is not possible, adhere to the following precautions:
  - Avoid holes and dips on the downhill side

- Avoid stumps, stones, bumps, and raised areas on the uphill side.
- when turning, avoid turning towards the top of the slope; always slow down and take a wide turn
- keep the heavier end of the tractor facing towards the top of the slope when driving up and down it.

- When driving across a slope with a tractor fitted with implements on one side, these implements must:
  - always be facing towards the top of the slope
  - never be raised
  - be left as close as possible to the ground
- When towing a load at transport speed, lock the drawbar in the center position and use a safety chain.
- Do not use the tractor to round up farm animals.

Preventing a rear overturn

- ***WARNING:***
  Hitching a load to the rear axle or on any other part located above the rear axle may cause a rear overturn.

- Do not pull anything using the top link connection or from any point above the center line of the rear axle. Always use a Massey Ferguson-approved drawbar and only use a lockable drawbar pin.
- When using a drawbar for a three point hitch, use the stabilizers and keep the drawbar in the bottom position.
- Use front counterweights to increase tractor stability when towing heavy loads or to counterbalance the weight of a heavy rear-mounted implement.
- Start off slowly and then gradually increase speed.
- Do not release the clutch suddenly.
- If a heavy load or immovable object is attached to the tractor, incorrect use of the clutch may cause the tractor to overturn.
- If the front end of the tractor starts to lift, disengage the clutch.
- If the tractor is bogged down in mud or frozen to the ground:
  - do not attempt to drive forward as the tractor could then rotate around its rear wheels and overturn
  - lift any attached implements and attempt to reverse. If this is not possible, tow the tractor out with another vehicle.
- If the tractor is stuck in a ditch, if possible, attempt to reverse out. If you must go forward, do so slowly and carefully.
- A bare tractor or a tractor fitted with a rear implement must climb a slope in reverse gear and descend the slope in forward gear.
- A tractor fitted with a full loader at the front must climb a slope in forward gear and descend the slope in reverse gear. The loader must be kept as close to the ground as possible.
- Always engage a gear when driving downhill. Do not allow the tractor to coast down the slope with the clutch disengaged or the transmission in neutral.

2.7.4 Tractor towing

T000878

Comply with the instructions described in the "Operation" chapter of this book.

2.7.5 Road use

T000879

- ***WARNING:***
  Never allow any passengers to ride on the tractor and implements.

- ***WARNING:***
  Do not use the work lights when travelling on a road because rear white lights are illegal except when reversing and may confuse following drivers.

– Ensure that all clearance flags and rotary beacons that indicate an abnormal load are in position and are in working order.
– Clean all the reflectors and the front and rear lights. Ensure that they are in working order.
– Ensure that the tractor and implements are fitted with SMV emblems and other markings recommended to improve visibility when driving on roads (unless the regulations state otherwise) *fig. 5*.

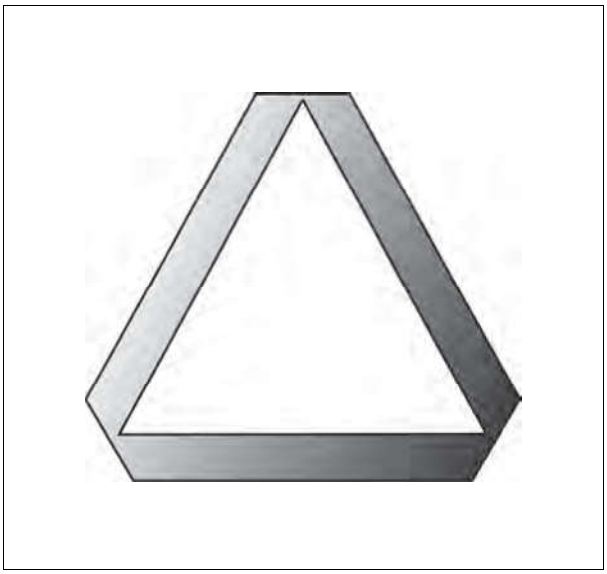


Fig. 5. I002869

– Place all implements in the transport position so that they take up minimum space and lock them in position.
– Lock the brake pedals together.
– Disengage the power take-off and the differential lock.
– Observe all current local and national regulations regarding the use of a tractor on the road.
– Depending on the equipment fitted to the tractor and unless regulations state otherwise, use the rotary beacons or the hazard warning lights day and night.
– Familiarize yourself with the road you will be travelling on.
– Exercise the utmost caution when driving on snow-covered or slippery roads.
– Wait for traffic to clear before entering a public road.
– Beware of blind intersections: Slow down until you have a clear view.
– Do not attempt to push your way through at any intersection.
– Slow down for turns and curves.
– Make wide turns at a moderate speed.
– Signal your intention to slow down, stop or turn.
– Shift to a lower gear before going up or down hills.
– Always drive the tractor in gear. Do not coast with the clutch disengaged or the transmission in neutral.
– Do not overlap the lane of traffic for vehicles travelling the other way.
Stay in your lane, as close as possible to the roadside.
– If a traffic jam forms behind the tractor, pull off the road and allow the vehicles behind to pass.
– Drive carefully. Anticipate what other drivers might do.

If towing a load

– Always anticipate obstacles, especially if the trailed implement is not fitted with brakes.
– Start braking much earlier than usual and slow down gradually.
– Ensure that the load is not concealing the lights or the rotary beacons.
– Take account of your load, especially for high obstacles.

2.7.6 Power take-off

T000893

2

DANGER:

Do not attempt to unplug the hydraulic connections or adjust an implement with the engine running or the PTO in operation. To do so may result in serious injury or death.

– Ensure that all the PTO shaft guards are in place and check the presence of all safety signs *fig. 6*.

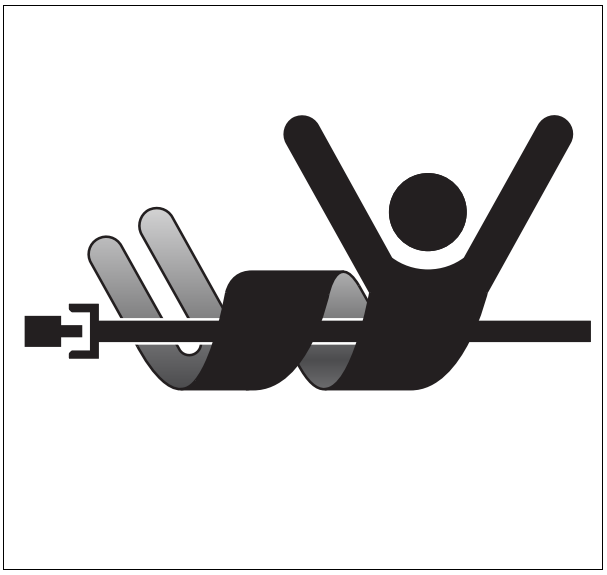


Fig. 6. I002874

– Ensure that the PTO cap (1) is fitted when the PTO shaft is not in use *fig. 7*.
– Before hitching, unhitching, cleaning or adjusting the implements driven by the PTO, follow the "mandatory procedure before dismounting the tractor" *see §2.4.5, page 32*.
– Ensure that there is nobody in the vicinity of the implement before engaging the PTO.
– For stationary PTO operation, place the transmission lever and/or the shuttle lever (both if the tractor is fitted with them) in neutral, apply the hand brake or engage ParkLock (depending on option) and chock the wheels of the tractor and the implement.
– Do not use PTO adapters, reducers or extensions as they extend the PTO coupler beyond the protection offered by the guard.

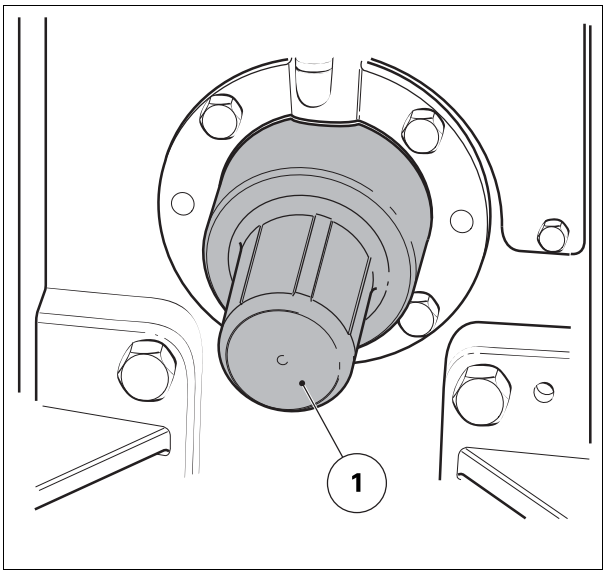


Fig. 7. I002871

2.7.7 Implements

T000894

– Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
– ***DANGER:***

To avoid serious injury or death due to falling loads resulting from inadvertent raising or roll-back of the loader, do not connect loader hydraulics to any tractor auxiliary valve that has detents which cannot be locked out or removed, except for the float function in the loader lower circuit. If the tractor is equipped with such a valve, a dedicated, properly configured loader valve must be installed.

DANGER:

A front-end loader with a bucket or forks must be fitted with a holding device. This device must prevent the load (bales, fence posts, rolls of fence, wire, etc.) from rolling down the length of the loader arms when the loader is raised, as it could crush the operator. Objects that are incorrectly secured may also fall and injure people in the vicinity of the tractor.

When using a loader, avoid sudden stops, starts, turns or changes in direction. Keep loads close to the ground when transporting.

- Never lift loads above someone.
- Implements fitted to the three-point hitch or to the side of the tractor make a much larger arc when turning than trailed implements. Ensure there is enough room to maneuver in complete safety.
- Only use implements suitably adapted for your tractor.
- Always read the implement instruction books fully for implements to be used with the tractor and comply with the safety instructions they contain.
- Do not modify or remove any parts of an implement.
- Do not touch the mechanism of an implement or lean over it or attempt to reach it. Do not allow anyone else to do this either.
- Do not allow anyone (including yourself) to stand or pass in front of, under or behind an implement.
- If the tractor is not immobilized according to the "mandatory procedure before dismounting the tractor" *see §2.4.5, page 32*, never stand or allow any person to stand between the tractor and the implement.
- Always use implements that are capable of safely carrying the load that you wish to place in it.
- Do not overload a trailed implement. Use appropriate counterweights to maintain tractor stability.
- The top link and the lift rods must never be taken beyond the point where the thread starts to appear.
- When using chemicals, follow the chemical manufacturer's instructions for use, storage and disposal carefully.
- All trailed implements and trailers should be connected to the tractor with a safety chain (1) .*fig. 8*

  Should a trailed implement accidentally become separated from the drawbar during transport, this safety chain will help to retain the trailed implement. Using the appropriate adapter parts, attach the chain to the tractor's drawbar anchor or any other specified anchor point. Leave only enough slack in the chain to allow for maneuvering.
  The safety chain must have a strength equal or greater than the weight of the trailed implement: contact your Massey Ferguson dealer to obtain a suitable chain.

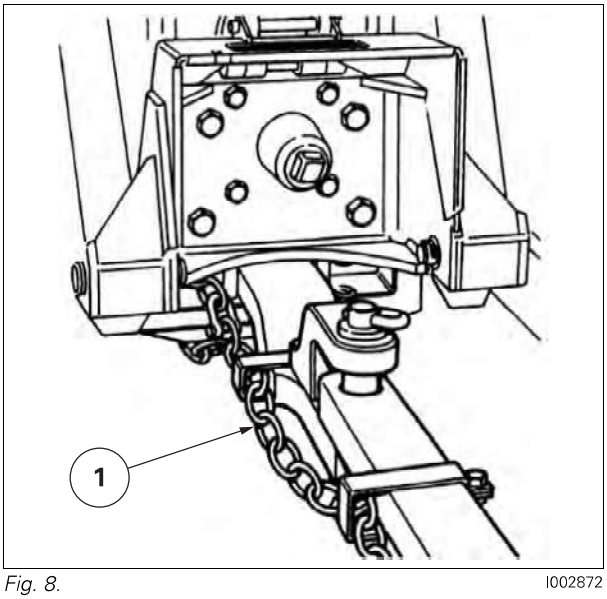


Fig. 8. I002872

2

– Only tow using the drawbar. Attaching the trailed implement to another location could cause the tractor to overturn.

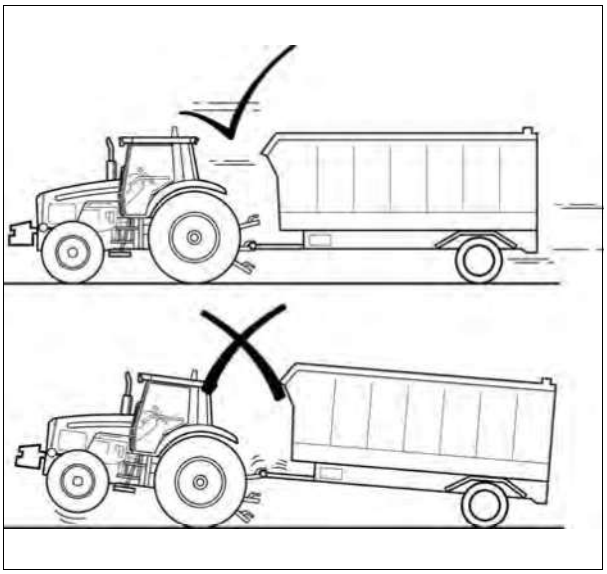


Fig. 9. I002873

Towing: permissible load and speed

WARNING:

The stopping distance increases with the speed and weight of the trailed implements, and also on a slope. Whether they are fitted with a brake system or not, trailed implements that are too heavy for the tractor or that are towed at too high a speed may lead to a loss of control. Take account of the total weight of the trailed implement (including the load).

Towed equipment without brakes:

Do not tow equipment that does not have brakes:

– at speeds of more than 32 km/h (20 mile/h); or
– at speeds above those recommended by the manufacturer; or
– with a mass (weight) that is over 1,5 t (2 US ton) (3300 lb) when fully loaded and is more than 1.5 times the mass (weight) of the tractor.

Towed equipment with brakes:

Do not tow equipment that has brakes:

– at speeds of more than 50 km/h (31 mile/h); or
– at speeds above those recommended by the manufacturer; or
– with a mass (weight) more than 4.5 times the mass (weight) of the tractor when fully loaded;
– at speeds of more than 40 km/h (25 mile/h) if, when fully loaded, it has a mass (weight) more than 3.0 times the mass (weight) of the towing unit.

2.7.8 Front-end loader

T006905

WARNING:

The programmable features of the joystick or other control MUST NOT be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be a self neutralizing type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

2.8 Specific safety instructions for servicing the tractor

2.8.1 Pollution warning to observe when servicing the tractor

T000889

IMPORTANT: *It is illegal to pollute drains, water courses or soil. Use authorized waste disposal facilities, dumps or garages providing facilities for the disposal of used oil. If in doubt, contact your local authorities for advice.*

2.8.2 General instructions

T000887

– Never service the tractor while the engine is running or hot or if the tractor is in motion *fig. 1*.

Fig. 1. I002862

– Before making adjustments to or servicing the electrical system, disconnect the battery cables, negative (-) terminal first.
– To prevent risks of fire or explosion, keep batteries and cold weather starting aids away from open flames.
– To prevent sparks which could cause explosions, use jumper cables according to instructions.
– Consult your Massey Ferguson dealer for repairs or adjustments and have the work carried out by trained personnel.
– The implement and/or tractor must be supported on suitable blocks or stands, not on a hydraulic jack.
– Check all nuts and bolts periodically for tightness, especially wheel hub and rim nuts. Tighten to the torque values stipulated.
– Regularly check the brakes.
  Ensure that the brakes are uniformly adjusted, especially if a trailer is used.
  In case of malfunction, consult your dealer.
– Accumulators.
  The accumulators contain nitrogen and are pressurized.
  They may become hot and cause burns.
  Modifications must not be made to the accumulators (by welding, drilling, attempting to open, cutting, etc.).
  The repair, maintenance, and commissioning of the accumulators must only be carried out by trained personnel.
  Consult your Massey Ferguson dealer regarding any maintenance.

2.8.3 Special instructions for cleaning the tractor

T000888

– Before cleaning the tractor, always:
  – follow the "mandatory procedure before dismounting the tractor" *see §2.4.5, page 32*, and
  – remove or put away implements, buckets, chains and hooks.

- Clean steps, pedals and floor. Remove grease or oil. Brush away dust and mud. In winter, scrape away snow and ice. Remember — slippery surfaces are hazardous.
- When washing the tractor with a jet of water, do not direct the jet straight onto electrical components.
- If using a high-pressure cleaning device, maintain a sufficient distance so as not to damage the paintwork and the sealed sections.
- Keep work surfaces and engine compartments clean.
- After washing, grease the lubrication points, the hinged sections and the bearings.

2.9 Protective structures

2.9.1 Protective structures: use and accreditation

T000935

The protective structures (cab, ROPS, seat belts) limit injuries as far as possible in case of an accident or if the tractor overturns.
They meet all applicable standards for agricultural tractors.

2.9.2 Cab or ROPS (depending on model)

T000936

- The cab and ROPS have been designed to be suitable for this tractor series.
- Never weld parts onto the cab or ROPS.
- Never bend or straighten the cab or ROPS.
- Never drill or modify the cab or ROPS to fit accessories or implements.
  If other controls or displays have to be fitted in the operator's area, contact your Massey Ferguson dealer to find out what to do.
- Do not attach chains or ropes to the cab or to the ROPS in order to pull or tow anything.
- If the cab or the ROPS has been removed, refit it and tighten the fixings to the specified torque before using the tractor again.
- ***WARNING:***
  A cab or ROPS damaged as a result of an accident, overturning or other incident must be replaced before using the tractor again.

2.9.3 Seat belt

T000934

- Wearing the seat belt is an important part of this protection.
- Always wear the seat belt adjusted correctly.

WARNING:
A damaged seat belt must be replaced before using the tractor again.

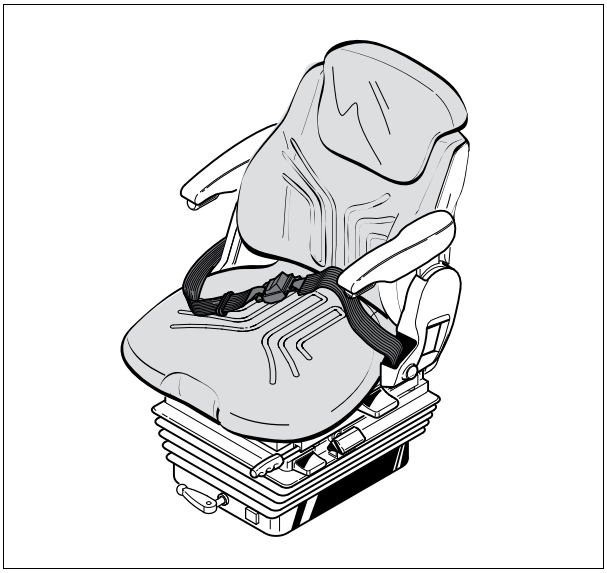


Fig. 1. I002857

2.9.4 Instructor seat

T003334

– Use of the instructor seat is exclusively reserved for an instructor or technician. The seat is NOT suitable for children.
– The seat belt must always be worn and correctly adjusted when using the instructor seat.

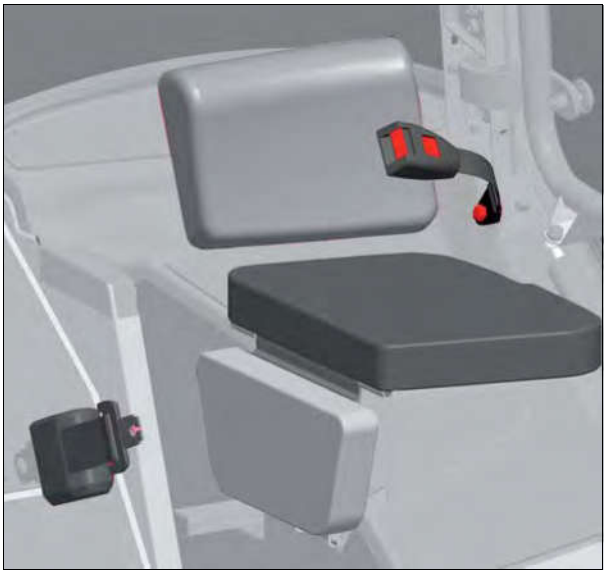


Fig. 2. I009901

2.10 Warranty

2.10.1 General

T000853

When selling new products to its dealers, the manufacturer provides a warranty which, subject to certain conditions, guarantees that the goods are free from defects in material and workmanship. Since this book is published worldwide, it is impossible to detail the exact terms and conditions of warranty that apply to all retail customers in all countries. Purchasers of new Massey Ferguson equipment should therefore request full details from their supplying dealer.
In accordance with the manufacturer's policy of continuous improvement of its products, the manufacturer reserves the right to make alterations to the specifications of machines at any time without notice. The manufacturer disclaims all liability for discrepancies which may occur between the specifications of its products and the descriptions thereof contained in its publications.

2.10.2 Pre-delivery inspection and commissioning at the user's premises

T000854

The dealer is required to carry out certain activities when supplying a new tractor. These consist of carrying out a full pre-delivery inspection to ensure that the tractor supplied is ready for immediate use, and providing full instructions to the user on the basic principles of operation and servicing of the tractor. These instructions will cover instruments and controls, and routine servicing and safety precautions. All persons who will be involved in the operation and servicing of the tractor should be present when these instructions are given.

IMPORTANT: *Massey Ferguson disclaims all liability in the event of any claim resulting from the fitting of non-approved parts, accessories, implements or attachments, or unauthorized modifications or alterations.*

2.10.3 Warranty procedure

T000855

Correct commissioning on the user's premises and routine servicing help to prevent breakdowns. However, if operating problems do occur during the warranty period, follow this procedure:

- Immediately inform the dealer you purchased the tractor from, stating the model and serial number. It is very important not to delay, as even if the defect is covered by the original warranty, the coverage may no longer apply if the repair is not carried out immediately.
- Provide the dealer with as much information as possible. The dealer will need to know how many hours the tractor has been in service, what type of work it is used for and the symptoms of the problem.

Routine servicing operations not covered by the warranty

It should be noted that routine servicing operations such as tuning, brake and clutch adjustment, and the supplies used for tractor servicing (oil, filters, fuel and antifreeze, etc.), are not covered by the warranty.

Warning concerning spare parts

Parts other than Massey Ferguson parts are likely to be of lower quality. Massey Ferguson disclaims all liability in the event of loss or damage arising as a result of such parts being fitted. The manufacturer's warranty may also become void if such parts are fitted during the normal warranty period.

2.10.4 Procedure to follow if changing region

T000856

Only the dealer from whom the tractor was purchased is liable for the protection provided by the warranty. Any repairs should, wherever possible, always be carried out by this dealer. If, however, the owner moves to another region or if the tractor is to be used temporarily at a location a long way from the dealer from whom it was bought, it is advisable to ask this dealer for the name and address of the dealer closest to the new address and arrange to have the obligations remaining to be fulfilled under the warranty transferred to this dealer.

If the customer leaves the region covered by the original dealer without having taken these steps, the new dealer will offer its services if needed, but may invoice them at the normal rate unless:

- the customer has clearly stated that the warranty period has not expired, and
- the repair dealer has been given the possibility of taking the necessary steps with the selling dealer.

2.10.5 Servicing during and after the warranty period

T000857

2

During the warranty period, all servicing and repair work must be carried out by the dealer, who will carefully carry out detailed checks of the progress and performance of the new tractor.

To obtain best results from a Massey Ferguson tractor, it is important to continue regular servicing and periodic inspections after the warranty has expired. All major overhaul work on the tractor must be carried out by a local dealer; an experienced technician will detect any problems which may arise between one overhaul and the next. Technicians regularly follow training courses to update their knowledge of the product and servicing and repair techniques, and the use of special tools and modern diagnostic equipment. They receive regular Service Bulletins and have access to all the workshop manuals and technical publications required to carry out repairs or servicing in accordance with the quality standards required by Massey Ferguson.

2.10.6 Owner's Maintenance and Repair Responsibility

T002563

As the engine owner, you are responsible for the proper use and maintenance of the engine, as specified in the Operator's Manual.

AGCO reserves the right to deny coverage under this warranty if the engine and/or parts have not been properly maintained or have been subject to neglect, abuse, and unapproved modifications.

AGCO recommends that you keep the original purchase receipt, showing the date of initial purchase, and all repair receipts and maintenance records, and transfer them to any subsequent owner.

AGCO will not deny warranty repairs solely for the lack of receipts or your failure to document the performance of all scheduled maintenance. As the engine owner you are responsible for presenting your engine to the nearest dealer or service center authorized by AGCO when a problem arises.

Subject to the limitations above, non-warranty maintenance or repair of emission control parts on the engine may be performed by the owner, or by any repair establishment or individual, without affecting coverage under this warranty; but, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY AGCO OR THE MANUFACTURER OF THE ENGINE.

The use of parts that are not equivalent in performance and durability to genuine parts may impair the effectiveness of the emission control system of invalidation coverage under this warranty. If non-genuine parts are used for maintenance or replacement on the engine, you should assure yourself that such parts are warranted by their manufacturer to be equivalent to genuine parts in performance and durability.

Limitations

This warranty shall not cover any of the following:

1. Conditions resulting from tampering, misuse, abuse, improper adjustment, engine alteration, use of modified parts, use of replacement parts that are not the same in performance and durability as genuine replacement parts, accident, failure to use the recommended fuel or oil, use of unapproved fuel or oil additives, or not performing required maintenance.
2. Consequential damages such as loss of time, inconvenience, or loss of use of the engine or equipment.
3. Damages or repair costs caused by the owner's unreasonable delay is making the engine available for warranty inspection and repair.
4. Repairs not covered by this warranty, and diagnosis or inspection fees that do not result in eligible warranty service being performed.
5. Any replacement with non-genuine parts, or any malfunction of genuine parts due to use of non-approved parts.

Obtaining Warranty Service

All repairs qualifying under this limited warranty must be performed by a dealer or service center authorized by AGCO or the manufacturer of the engine.

To obtain warranty service, take your engine to the nearest dealer or service center authorized by AGCO or the engine manufacturer. If available, bring the original purchase receipt, showing the initial date of purchase, and all available maintenance records. The authorized dealer or service center will perform the necessary repairs or adjustments within a reasonable time and furnish you with a copy of the repair order. AGCO wants to ensure that you receive all the services to which you are entitled under this warranty. If you need assistance in locating the nearest authorized dealer or service center, or have any questions about this warranty, you may contact an AGCO Warranty representative at:

Product Reliability Group
AGCO Corporation
P.O. Box 4300
Hesston, KS 67062-2002
1-800-558-0744

2.10.7 ENGINE EMISSIONS LIMITED WARRANTY

T002561

Warranty Statement

AGCO warrants to the initial purchaser and each subsequent owner that the engine in this equipment is designed, built, and equipped so as to conform at the time of initial sale with all applicable regulations of the U.S. Environmental Protection Agency (EPA) and the Californian Air Resources Board (CARB), and is free from defects in materials and workmanship which cause such engine to fail to conform with applicable EPA or CARB regulations for its warranty period. This warranty is effective in all states of the U.S.A. and all provinces and territories of Canada.

Warranty Period

The warranty period for the engine begins on the date of sale to the initial purchaser of the machine in which it is installed. The warranty period for engines rated under 19 kW (25 HP) is two years or 1500 hours of use, whichever first occurs. The warranty period for engines rated at or over 19 kW (25 HP) is five years or 3000 hours of use, whichever first occurs.

Parts Covered

Listed below are the parts covered by this warranty. Any part listed below that is subject to scheduled maintenance during the warranty period is warranted up to the first scheduled replacement point for that part. A part repaired or replaced under this warranty is warranted for the remainder of the warranty period, or until the next scheduled replacement, as applicable. Parts replaced under this warranty become the property of the manufacturer. The warranted parts include:

Under 19 kW (25 HP)	2 years or 1500 hours whichever first occurs	Rubber Flanges Fuel Injector Pump Fuel Injectors Intake Manifold Exhaust Manifold Nozzle Assembly Turbo Charger (if applicable)
19 - 37 kW (25 HP)	5 years or 3000 hours whichever first occurs	Rubber Flanges Fuel Injector Pump Fuel Injectors Intake Manifold Exhaust Manifold Nozzle Assembly Turbo Charger (if applicable)
37 kW (50 HP) and up	5 years or 3000 hours whichever first occurs	Fuel Injection Pump Nozzle Assembly Injection Pipe Connector of Fuel Line Fuel Pipe Assembly Inlet Pipe Inlet Pipe Band Air Cleaner Element Fuel Filter Element Turbocharger Exhaust Manifold Hoses, clamps, connectors ans sealing gaskets of devices used in systems above

2

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3.1 Cab

3.1.1 Steering console

T001633

Fig. 1.

I005452

(1) Start switch *fig. 10*
(2) Control unit *fig. 9*
This assembly comprises the direction indicator, windshield wiper, front and rear windshield washer and horn.
(3) Steering wheel adjustment *fig. 12*
(4) DOT Matrix controls
(5) Parameter display selector switch
(6) High beams, sidelight/low beams activation switch
(7) Hazard warning lights switch
(8) Switch for high beams on hand rails (optional)
(9) Direction of travel and reverse shuttle control lever.
(10) Electro-mechanical brake control (ParkLock option).

3.1.2 Instrument panel

T006634

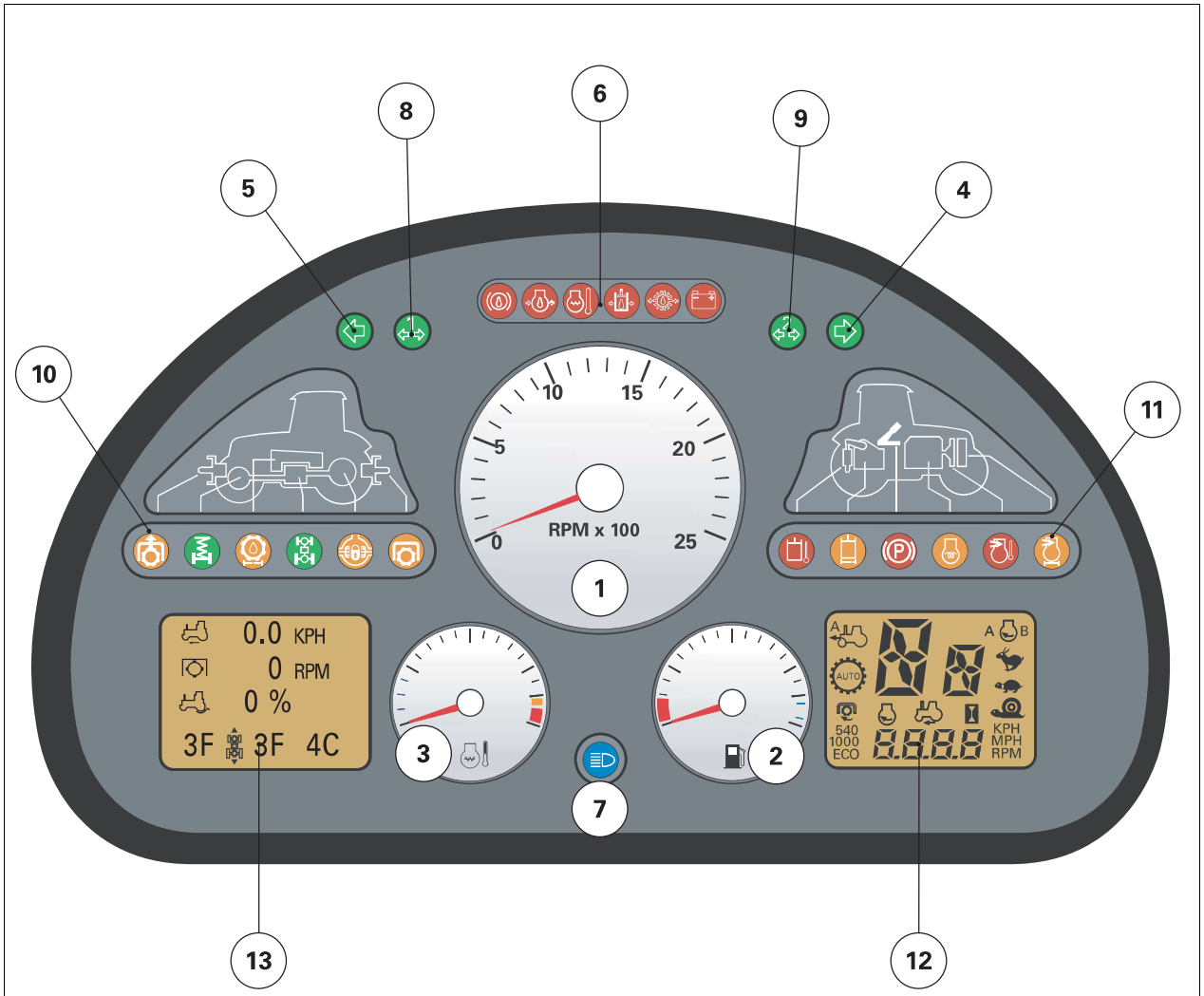


Fig. 2.

I005348

(1) Tachometer
The tachometer shows the engine speed in hundreds of revolutions per minute.
(2) Fuel gauge
(3) Engine coolant temperature gauge.
The green zone shows the normal operating temperature range. Stop the engine if the needle moves into the red zone.
(4) Right-hand directional indicator lights (green)
(5) Left-hand directional indicator lights (green)
(6) Failure indicator lights *fig. 5*
(7) High beam indicator light (blue)
(8) Direction indicator light for the first trailer (green)
(9) Direction indicator light for the second trailer (green)
(10) Indicator lights for functions in use*fig. 3*
(11) Parking brake and operating failure indicator lights *fig. 4*
If one of the indicator lights remains lit after the engine has started or during normal use, stop the engine and investigate the cause of the problem.
(12) Digital display
Displays the speed engaged (forward/reverse), A/B memory (electronic injection engine), Hare/Tortoise range.
(13) DOT Matrix screen *fig. 7*

Indicator light panel

Indicator lights for functions in use

(1) Front power take-off (orange)
(2) Front axle suspension indicator light (if option fitted) (green)
(3) High-pressure transmission oil filter blockage indicator light (yellow)
(4) Four-wheel drive indicator light (green)
(5) Differential lock indicator light (orange)
(6) Power take-off engaged (orange)

Green and orange indicator lights display and monitor the functioning of attachments.

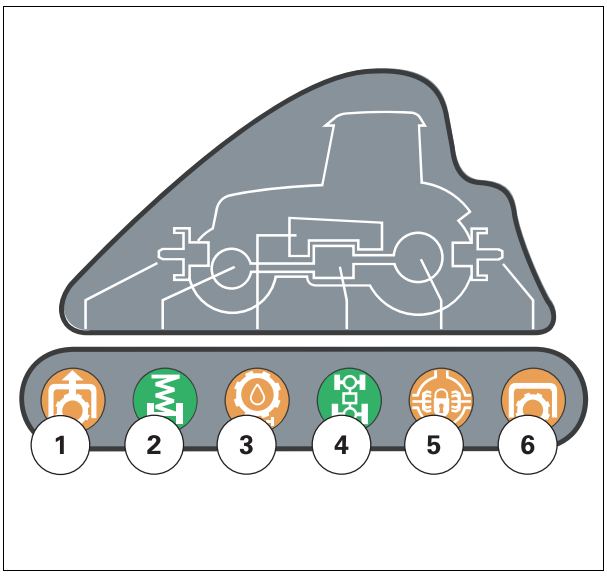


Fig. 3. I005349

Parking brake and failure indicator lights

(1) Auxiliary hydraulics oil temperature indicator light (red)
(2) 15-micron auxiliary hydraulics oil filter blockage indicator light (orange)
(3) Parking brake indicator light (red)
(4) Grid Heater indicator light (red).
(5) Intake air temperature indicator light (red)
This indicator light comes on when the ignition key is in "auxiliary" position. It goes out when the engine starts. If the indicator light comes on when the engine is running, stop the engine and investigate the cause of the problem immediately.
(6) Air filter blockage indicator light (orange)

Red indicator lights signal problems of varying importance. They light up when the ignition key is turned in the start switch and usually go out once the engine is running. If they light up during normal engine operation, stop the engine immediately and investigate the cause of the failure.

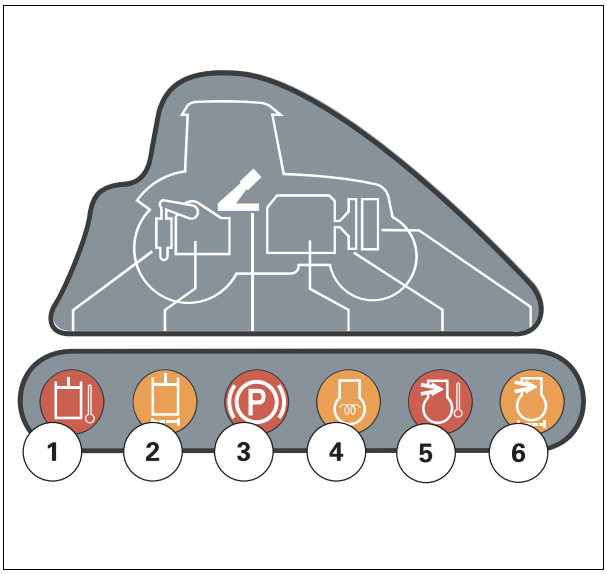


Fig. 4. I005350

Failure indicator lights

(1) Indicator light for brake pressure (ParkLock) or trailer brake air pressure (optional) (red)

(2) Engine oil pressure indicator light (red)
This indicator light is switched on when the ignition key is in "auxiliary" position. It goes out when the engine starts. If the indicator light comes on when the engine is running, stop the engine and investigate the cause of the problem immediately.
Check for low oil level or consult your dealer.

(3) Coolant temperature indicator light (red)

(4) Steering supply pressure

(5) Gearbox oil pressure indicator light (red)
If this indicator light comes on during operation, consult your Distributor or Dealer.

(6) Alternator charge indicator light (red)

Red indicator lights signal problems of varying importance. They light up when the ignition key is turned in the start switch and usually go out once the engine is running. If they light up during normal engine operation, stop the engine immediately and investigate the cause of the failure.

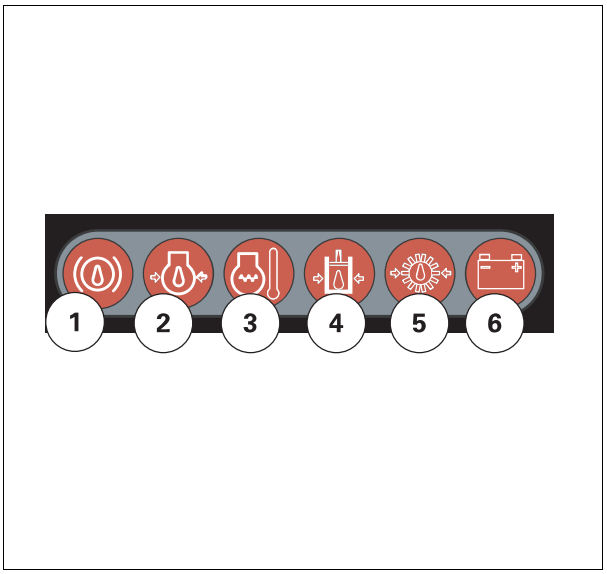


Fig. 5. I005353

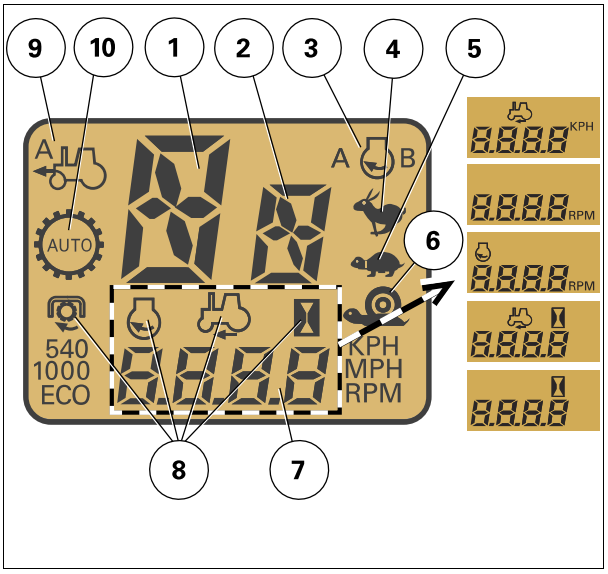
Digital display

(1) Forward/neutral/reverse (F/N/R) display
(2) Reverse shuttle sensitivity indicator
3 A/B speed memory status display (engine with electronic injection)
(4) Fast range engaged display
(5) Low range engaged display
(6) Creeper range engaged display.
(7) Digital display of rear PTO speed, engine speed, and working time
(8) Symbols for displaying the rear PTO speed, engine speed, and working time

NOTE: *These symbols light up when the corresponding display (7) is active.*

NOTE: *All these parameters can be selected by pressing button (5) on the right-hand side of the steering wheel.*
Resetting the working time: Display the parameter in question, then press and hold the button (5) for approx. 5 seconds to reset the display to 0.

(9) Front axle automatic operation indicator
10 PTO in automatic mode indicator



I018740

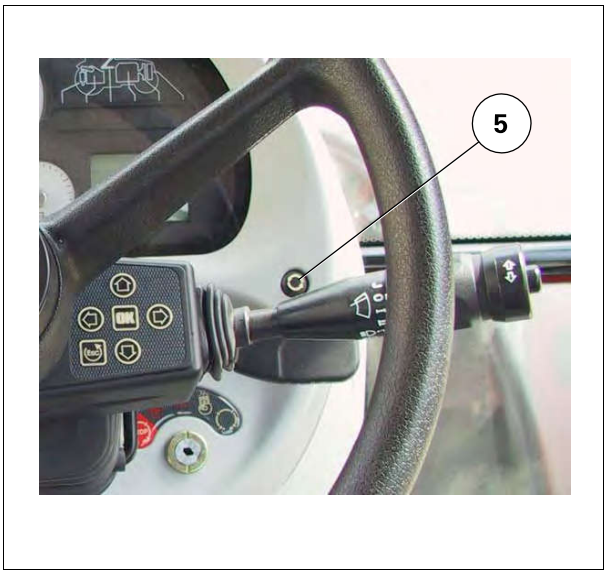


Fig. 6. I018751

DOT Matrix screen

(1) Programmed engine speed display A
(2) Programmed engine speed display B
(3) Programmed engine speed indicator
(4) Engine underspeed supervisor
(5) Shuttle forward speed value display
(6) Shuttle reverse speed value display
(7) Priority drive mode display (pedal, lever, etc.)
(8) Selected mode speed display
(9) SV1 speed regulator display
(10) SV2 speed regulator display

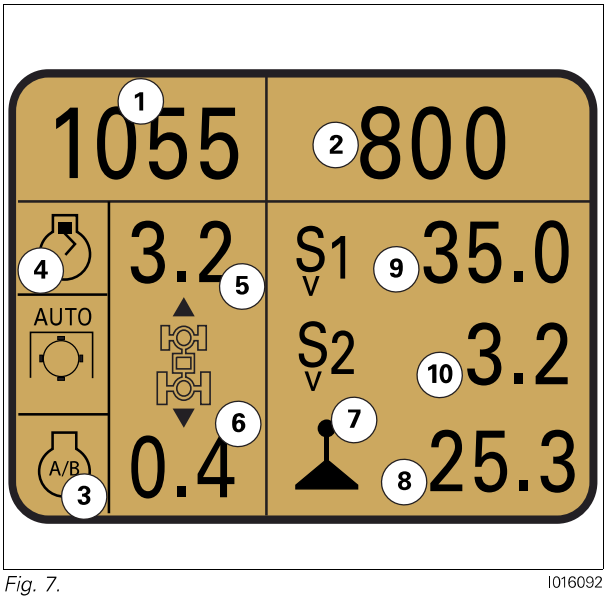


Fig. 7. I016092

Access controls to DOT Matrix menus

(1) Up scrolling key
(2) Down scrolling key
(3) Left-hand adjustment key
(4) Right-hand adjustment key
(5) Confirmation key
(6) Cancel key

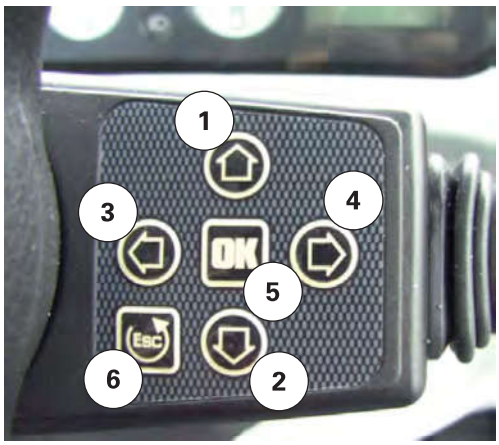


Fig. 8. I005357

3

3.1.3 Control unit

T000939

(1) Windshield wiper
J. Intermittent
0. Off
I. First speed
II. Second speed
(2) Left-hand indicator:
(A): momentary. Cancels once it is released.
(B): locked. Cancels when the steering wheel returns to the center (straight line).
It is the left-hand indicators that flash; the right-hand side remains permanently lit.
(3) Right-hand indicator:
(A): momentary. Cancels once it is released.
(B): locked. Cancels when the steering wheel returns to the center (straight line).
It is the right-hand indicators that flash; the left-hand side remains permanently lit.
(4) Horn
(5) Headlights flash
(6) Headlights position (after engaging main lighting) .
(7) Front and rear windshield washer

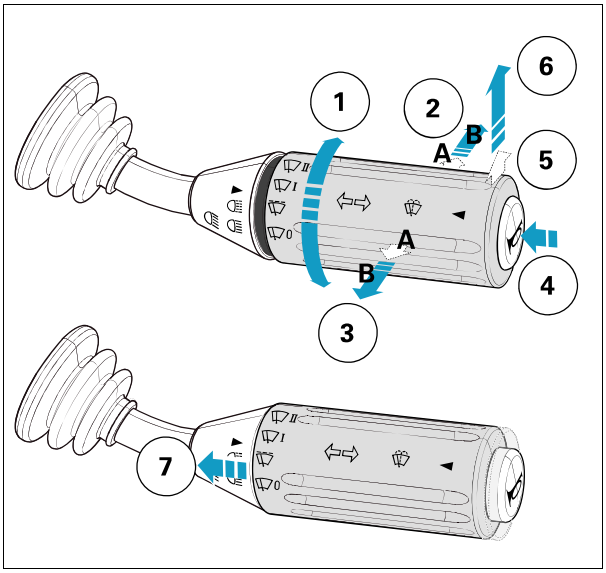


Fig. 9. I004676

3.1.4 Start switch

T000938

(1) Off
(2) Contact position to be used for electrical equipment when the engine is not running.
(3) Contact position to be used for electrical equipment when the engine is running.
(4) Preheating
(5) Start-up

NOTE: *The tractor runs with the key in position (3); to fully disconnect all electrical equipment, the key must be moved back through the accessory position (2) to the stop position (1).*

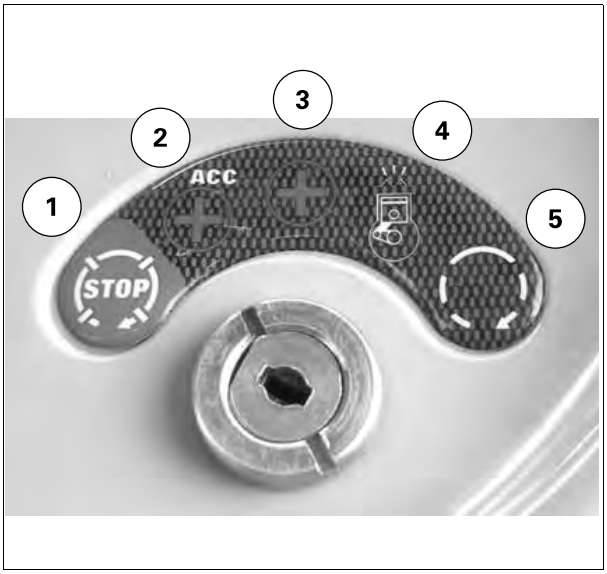


Fig. 10. I003146

3.1.5 Pedals

T000943

(1) Clutch pedal.
(2) Brake pedals
(3) Brake pedal locking latch.
(4) Throttle pedal.

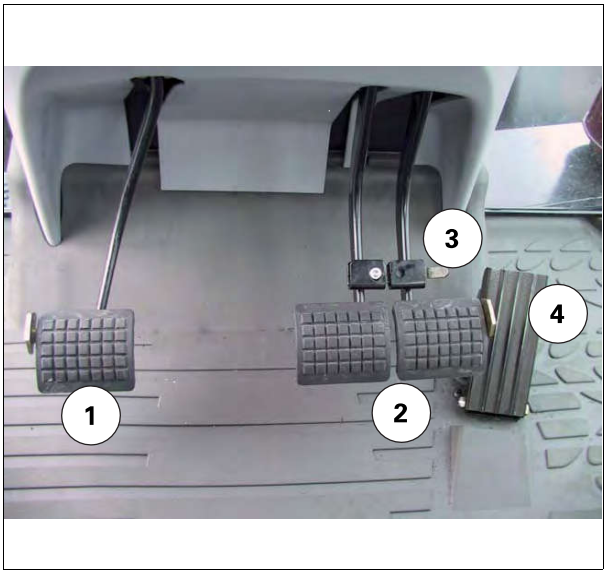


Fig. 11. I013219

Clutch pedal (1)

IMPORTANT: *Never keep your foot on the clutch pedal or keep it halfway engaged.*

The clutch pedal has a neutral start switch. The clutch pedal must be depressed fully before operating the starter.

Brake pedals (2)

The two brake pedals can be used either separately or locked together using the latch (3).

Throttle pedal (4)

WARNING:

When travelling on the road, only the throttle pedal should be used. The throttle lever should be moved to the idle position so that engine braking can be operational.

Use of the throttle pedal enables a momentary increase in the engine speed set by the hand throttle.

3.1.6 Steering Wheel

T000941

The steering wheel tilt and height can be adjusted. Both adjustments are made using a single lever *fig. 12*:

– height adjustment: pull the lever upwards to adjust the height
– tilt angle adjustment: press the lever downwards to adjust the TILT angle.

Fig. 12. I017271

3.1.7 Seat

T001538

Different seat models are fitted according to the options chosen.

Availability of adjustments varies according to the seat option fitted

WARNING:
Never adjust the seat when the tractor is in motion.

(1) Weight adjustment
(2) Seat height adjustment
(3) Legroom adjustment
(4) Backrest tilt adjustment
(5) Seat swivel adjustment
(6) Headrest
(7) Lumbar support adjustment
(8) Fore/aft shock absorber
(9) Armrest tilt adjustment
(10) Seat damping adjustment or weight/height indicator (according to model)

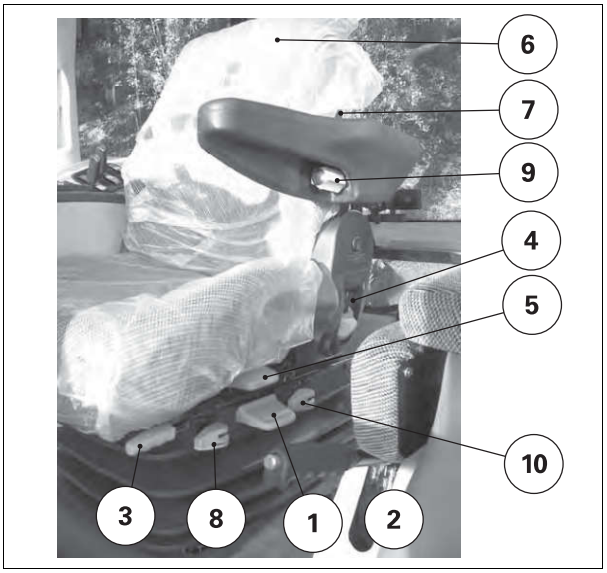


Fig. 13. I005361

Luxury pneumatic seat with automatic adjustment
(11) Seat tilt adjustment
(12) Seat depth adjustment

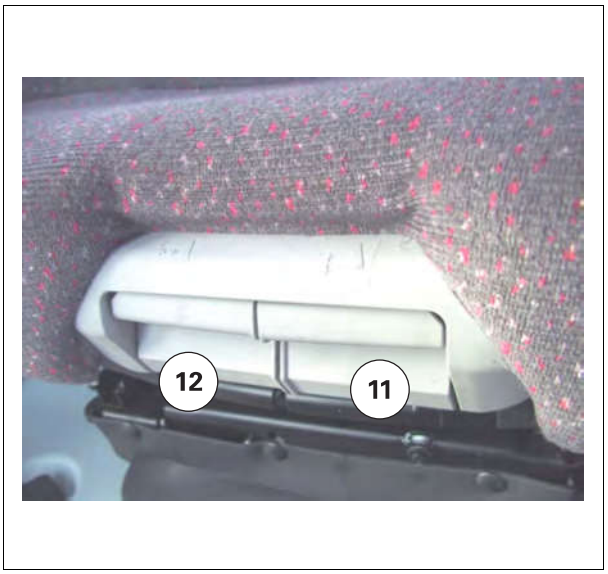


Fig. 14. I005366

(13) Lumbar support adjustment
(14) Seat heater

Fig. 15. I005367

Weight adjustment (1)

NOTE: *It is advisable to check the weight setting and adjust it as necessary before starting the engine.*

Automatic adjustment pneumatic seat
While sitting in the seat, pull briefly on the seat height and weight automatic adjustment lever (1).

Manual adjustment seat
With the seat unoccupied, turn the lever (or adjustment thumb wheel) provided.

Seat height adjustment (2)

NOTE: *To avoid damage, do not operate the compressor for more than 1 minute.*

Automatic adjustment pneumatic seat
The seat height can be set automatically and is infinitely adjustable.
The seat height can be altered by either pulling out or pushing in the lever (2). If the adjustment reaches the top or bottom end stop, the height will be adjusted automatically in order to obtain minimum shock absorber travel.

Manual adjustment seat
The seat height can be adjusted by several increments. The seat can be raised as required until it clicks into position. If the seat is raised higher than the last notch (end of travel), it returns to its lowest position.

Height/weight adjustment indicator: Pull out or press in fully the adjustment lever (2) *fig. 16* until the green mark appears on the indicator (10) indicating the weight and height.

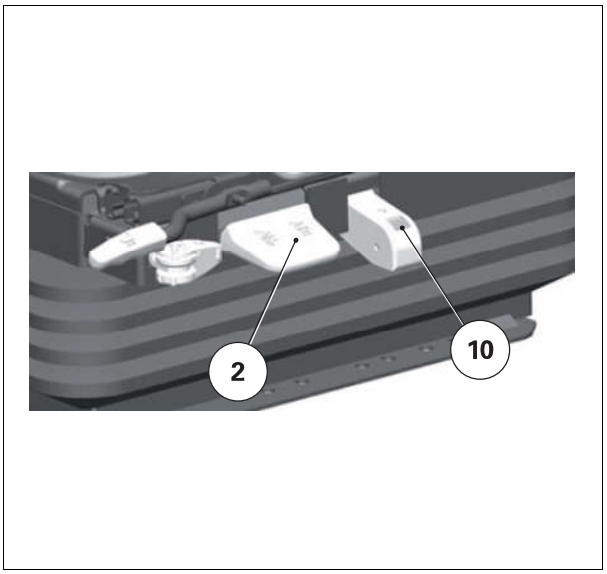


Fig. 16. I005365

Legroom adjustment (3)

Engage the locking lever in the desired position. It should not be possible to move the operator's seat into another position when it is locked.

Seat swivel adjustment (5)

Pull the lever until you feel resistance which allows you to turn the seat 20° to the left and 10° to the right. Lockable every 10°.
If you pull more strongly to overcome the resistance, the swivel will unlock to allow the seat to turn freely. Push the lever backwards to re-lock.
There will be a click when the lever locks into place. The swivel should be in the central position for driving on the road.

Fore/aft shock absorber (8)

In certain conditions (e.g., driving with a trailer attached), it is advisable to activate the fore/aft shock absorber. This means that shock impacts in the direction of travel can be better absorbed by the operator's seat:

– Position (A) = fore/aft shock absorber activated
– Position (B) = fore/aft shock absorber deactivated

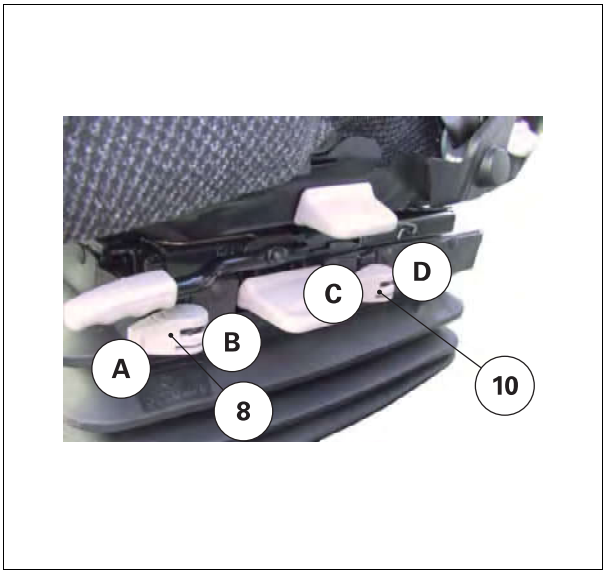


Fig. 17. I005364

Armrest height and tilt adjustment (9)

You can tilt the armrest, raise it towards the rear or adjust its height as required.
To adjust the armrest tilt, turn the notched thumb wheel (A).
To adjust the height of the armrest, the protective disc (B) must first be removed in order to access the adjustment screw.
Then loosen the nut, position the armrest at the required height, retighten the nut and put back the protective disc.

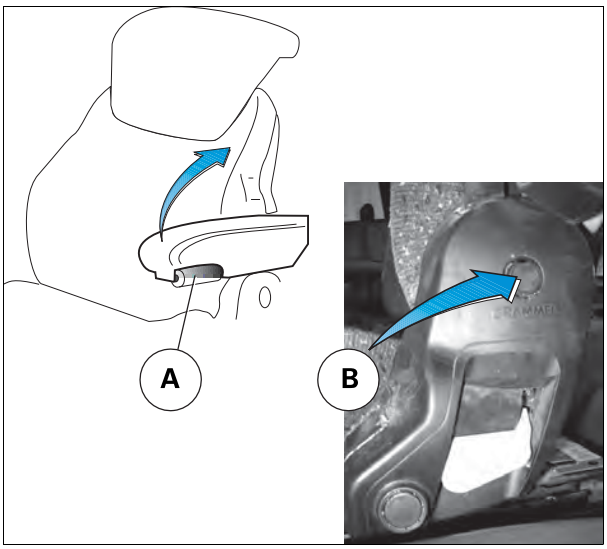


Fig. 18. I019049

Seat damping adjustment (10)

– Position (C) (facing forwards) = soft setting
– Position (D) (facing backwards) = hard setting.

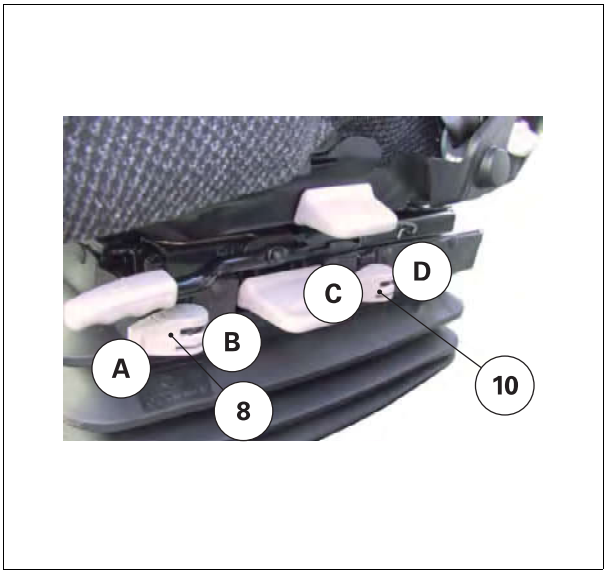


Fig. 19. I005364

Seat tilt adjustment (11)

The seat tilt can be adjusted separately.
Pull on the left-hand button while exerting or releasing pressure on the seat in order to find a comfortable position.

Seat depth adjustment (12)

The seat depth can be adjusted separately.
Pull on the right-hand knob and move the seat forwards or backwards to find the required position.

Lumbar support adjustment (13)

Turn the handle to the left or right to adjust the height or depth of the lumbar support or to activate the electrical contactors.

Seat heater (14)

Press the electrical contactor to start the seat heater.

Adjusting the multifunction armrest position

The length and height of the multifunction armrest located on the right-hand side of the seat can be adjusted after loosening the thumb wheels located on its underside (1).
Move the armrest to the required positions and firmly tighten the thumb wheels.

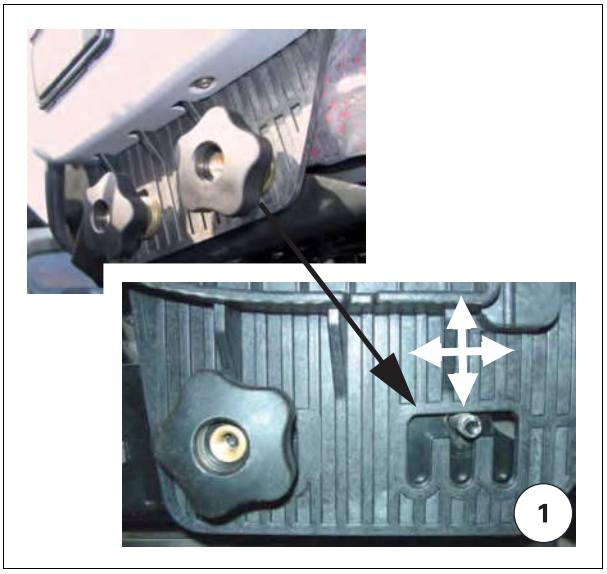


Fig. 20. I005368

3.1.8 Right-hand console

T012372

Tractors with underspeed supervisor

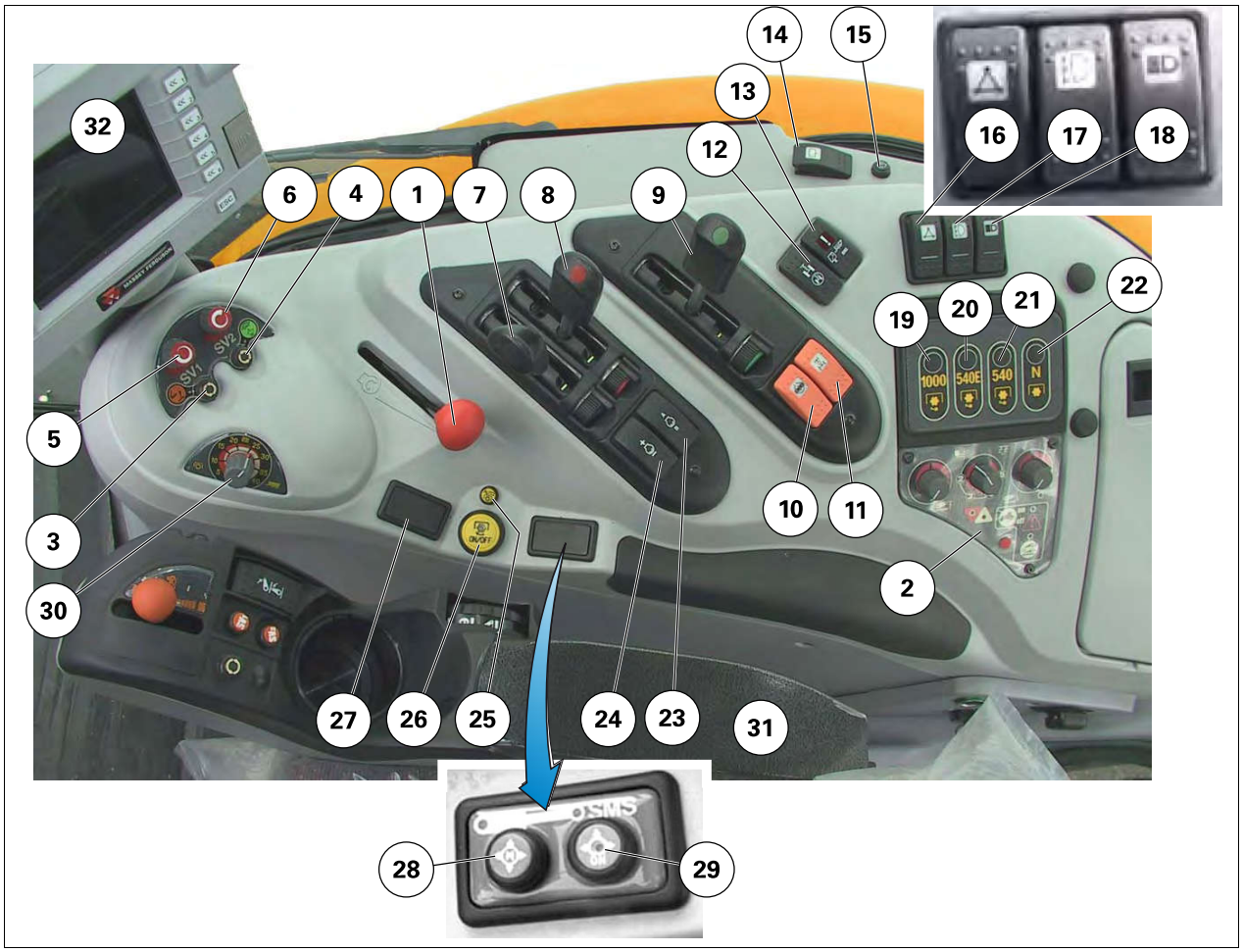


Fig. 21. I028542

(1) Hand throttle
(2) Electronic linkage controls
(3) Pedal or lever mode switch
(4) High speed/Hare or low speed/Tortoise range switch
(5) SV1 regulator control knob
(6) SV2 regulator control knob

(7) Third external hydraulic spool valve control lever (joystick option fitted).
(8) Fourth external hydraulic spool valve control lever.
(9) Fifth external hydraulic spool valve control lever.
(10) Differential lock switch
(11) 4WD front axle switch.
(12) Front axle suspension switch.
(13) Cab suspension switch.
(14) Side windshield wiper switch
(15) Side windshield washer switch
(16) (Triflash) triangle switch on cab roof
(17) Fog light switch
(18) Front and rear work light switch
(19) 1000 rpm PTO control switch.
(20) 540 Eco PTO control switch.
(21) 540 rpm PTO control switch.
(22) Neutral PTO control switch.
(23) A/B speed switch (engine with electronic fuel injection).
(24) +/- engine speed switch after selecting A/B speed (engine with electronic injection).
(25) Rear power take-off automatic mode switch.
(26) 540/540E/1000 rpm rear PTO ON/OFF switch.
(27) Front power take-off switch
(28) Spool valve hydraulic flow rate save to memory or cancel switch.
(29) Spool valve control on/off switch.
(30) Underspeed supervisor potentiometer
(31) Multi-function armrest.
(32) Datatronic 3 onboard computer (optional).

NOTE: *The underspeed supervisor potentiometer existed until the introduction of Dyna-TM mode*

Tractors without underspeed supervisor

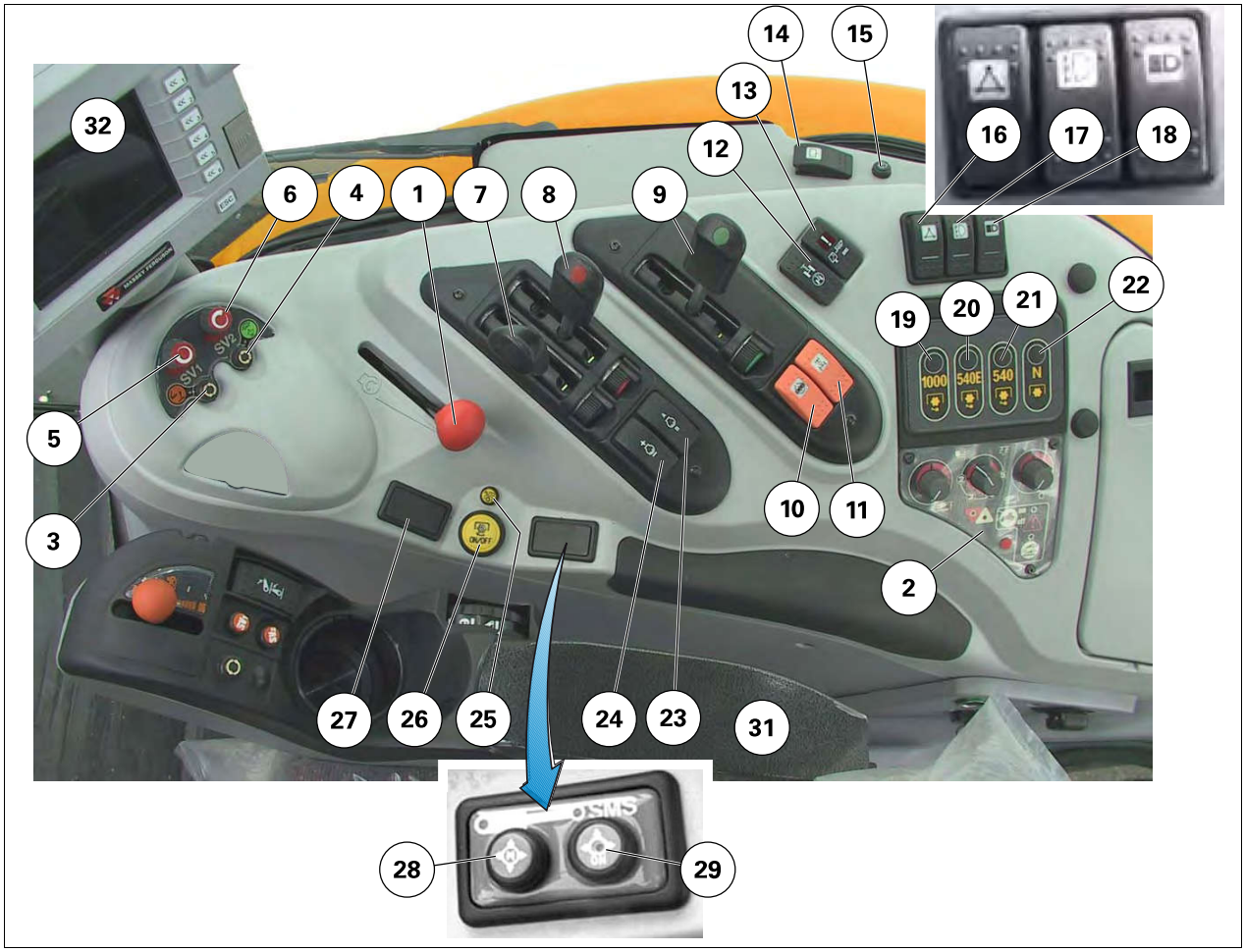


Fig. 22. I028543

(1) Hand throttle
(2) Electronic linkage controls
(3) Pedal or lever mode switch
(4) High speed/Hare or low speed/Tortoise range switch
(5) SV1 regulator control knob
(6) SV2 regulator control knob
(8) Fourth external hydraulic spool valve control lever.
(9) Fifth external hydraulic spool valve control lever.
(10) Differential lock switch
(11) 4WD front axle switch.
(12) Front axle suspension switch.
(13) Cab suspension switch.
(14) Side windshield wiper switch
(15) Side windshield washer switch
(16) (Triflash) triangle switch on cab roof
(17) Fog light switch

(18) Front and rear work light switch
(19) 1000 rpm PTO control switch.
(20) 540 Eco PTO control switch.
(21) 540 rpm PTO control switch.
(22) Neutral PTO control switch.
(23) A/B speed switch (engine with electronic fuel injection).
(24) +/- engine speed switch after selecting A/B speed (engine with electronic injection).
(25) Rear power take-off automatic mode switch.
(26) 540/540E/1000 rpm rear PTO ON/OFF switch.
(27) Front power take-off switch
(28) Spool valve hydraulic flow rate save to memory or cancel switch.
(29) Spool valve control on/off switch.
(31) Multi-function armrest.
(32) Datatronic 3 onboard computer (optional).

NOTE: *On tractors without underspeed supervisor potentiometer, adjustments can be made using the DOT Matrix screen.*

3.1.9 Multi-function armrest.

T006600

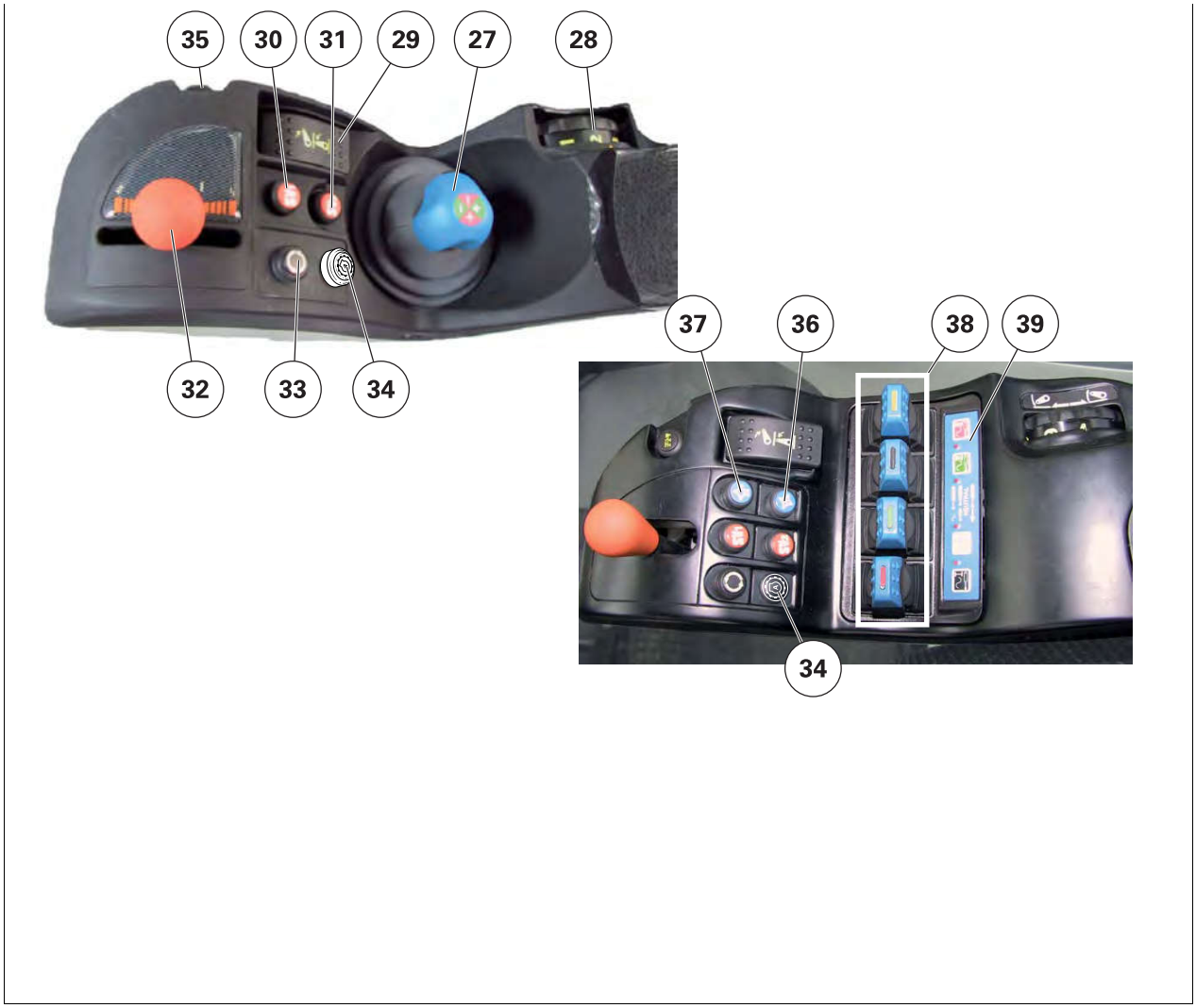


Fig. 23.

I016122

(27) 4-function control joystick (separate or combined)
(28) Linkage height/depth control knob.
(29) Linkage Lift/Lower switch with "neutral" position.
(30) SV1 speed selector switch
(31) SV2 speed selector switch
(32) Transmission cycling control.
(33) HEADLAND mode switch (Datatronic 3, Headland option)
(34) Dyna-TM mode switch
(35) Quick soil engagement control switch.
(36) Spool valve hydraulic flow rate save to memory or cancel button.
(37) Spool valve control on/off button.
(38) Four "SMS" spool valve controls ("FingerTip" option)
(39) Spool valve constant flow position switches (Kick-out)

3.1.10 Work lights modules

T001670

(1) Work lights/digital clock/temperature sensor control module and indicator lights.
Work lights: Press button(s) (2) to (7) to operate the desired function(s). The corresponding indicator light will illuminate.
(2) Front work lights
(3) Work lights on steps and hand rails and/or accessories power socket on front linkage.
(4) Work lights on fenders and hand rails.
(5) Rotary beacon
(6) Work lights at rear of roof
(7) Work lights on front of roof
(8) Digital clock and temperature sensor
- Press button (A) to select and change the time or temperature display.
- Changing the time: Press button (B) or (C) to select the information (hr or min) to be changed.
- Temperature control: Press button (A) to select the outside temperature display. To change from °Celsius to °Fahrenheit, press button (A) for approximately 5 seconds.

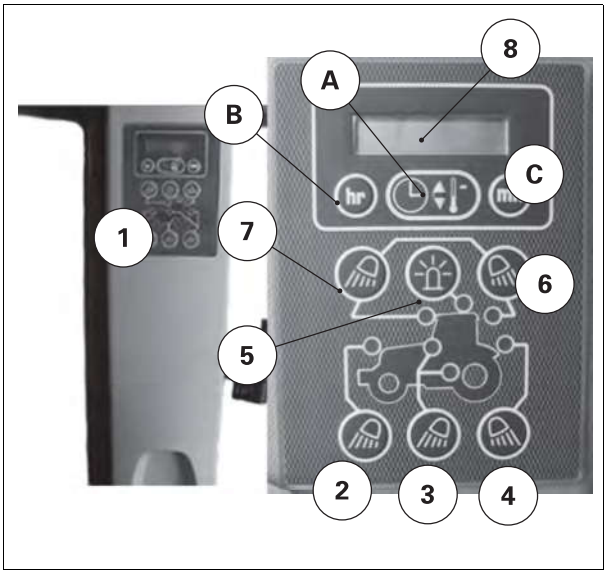


Fig. 24. I012100

3.1.11 Left-hand console

T001541

(1) Cigarette lighter socket.
(2) Electrical control for adjusting external rear view mirrors (optional).
(3) Rear windshield wiper
(4) External rear-view mirror defrosting control (optional).

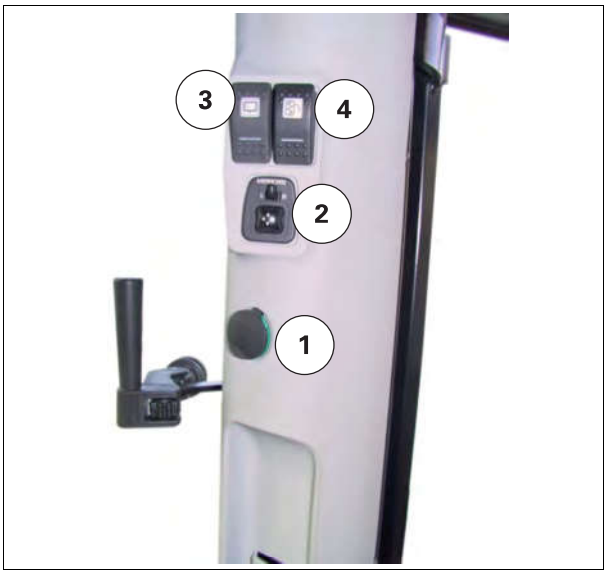


Fig. 25. I005358

(5) Parking brake
(6) Instructor seat and seat belt
(7) Storage tray.
(8) Cup/can stand.

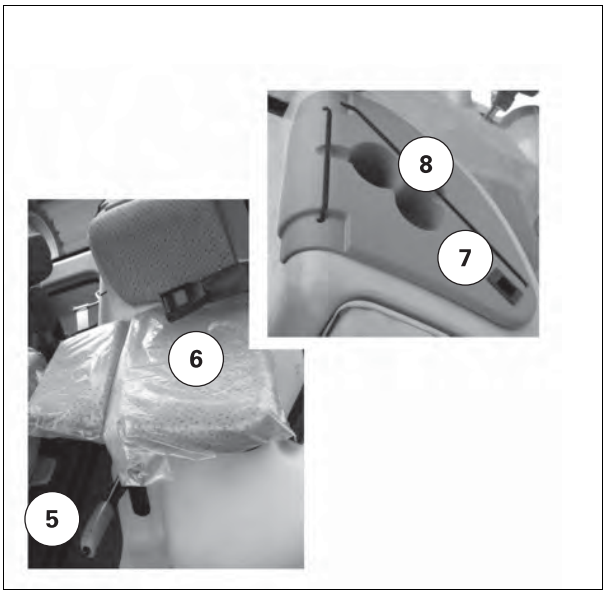


Fig. 26. I005360

3.1.12 Upper console

T003459

High-visibility roof

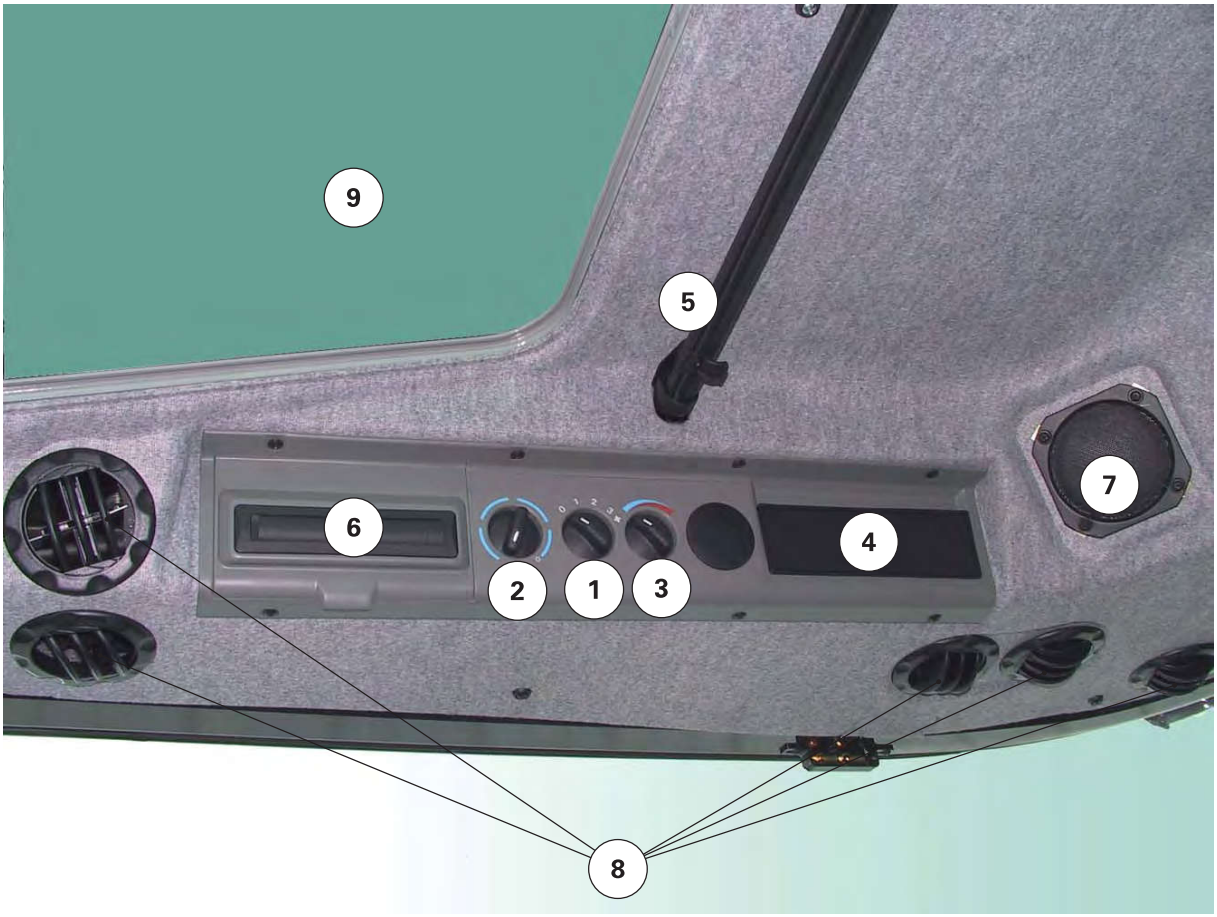


Fig. 27.

I009894

(1) 4-speed ventilation/heater fan control (optional)
(2) Thermostat (minimum/maximum) control knob
(3) Heater controls
blue = cold
red = warm
(4) Radio slot.
(5) Roller blind for glazed roof
(6) Drink storage compartment, which is cooled if the tractor is fitted with air conditioning
(7) Radio speaker location
(8) Adjustable air circulation vents.
(9) Roof hatch

(10) Interior light
By rotating the 3-position switch:
0 - off position
1 - light comes on when opening the left-hand door
2 - permanently on

Fig. 28. I009895

Standard roof

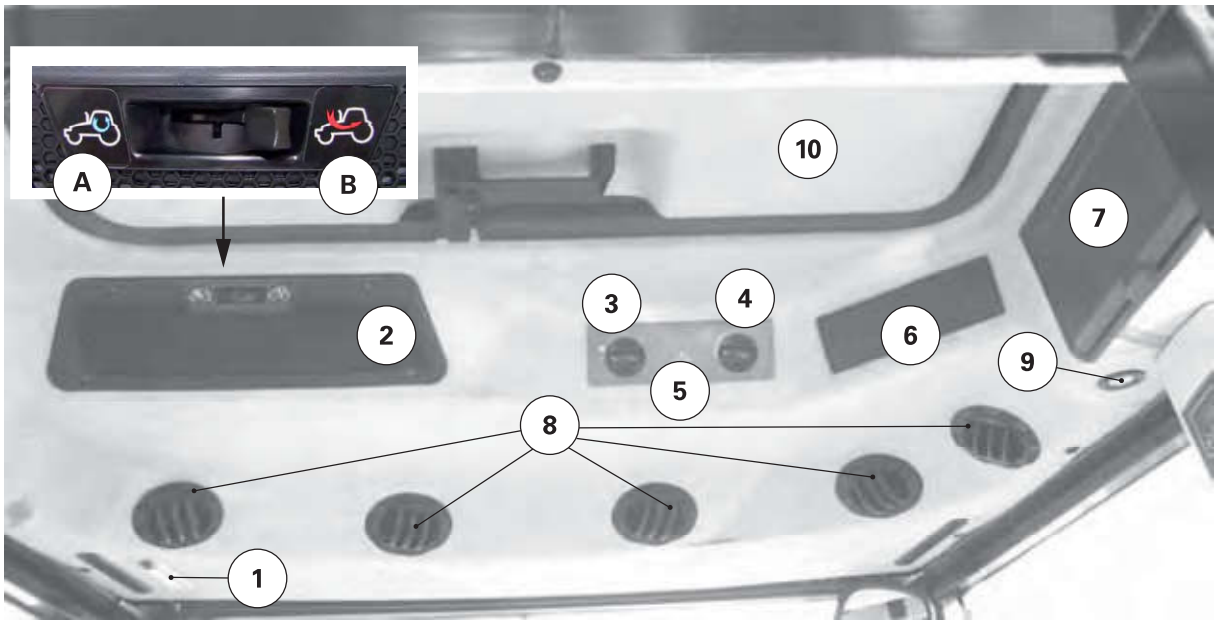


Fig. 29. I005369

(1) Interior light *fig. 30*
By rotating the 3-position switch:
0 - off position
1 - light comes on when opening the left-hand door
2 - permanently on

(2) Adjustable ventilation grille (according to model)
A: Recirculation
B: Outside air intake

(3) 4-speed ventilation/heater fan control (if fitted).

(4) Heater controls
blue = cold
red = warm

(5) Automatic air conditioning system control (air conditioning optional).

(6) Radio slot.

(7) Drink storage compartment, which is cooled if the tractor is fitted with air conditioning.

(8) Adjustable air circulation vents.
(9) Console lighting.
(10) Roof hatch (optional)

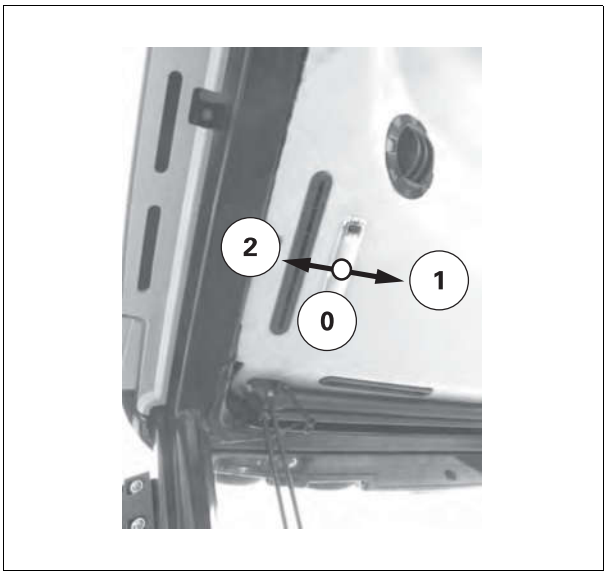


Fig. 30. I005372

3.1.13 Air conditioning

T001530

IMPORTANT: *When the air conditioning system is in use, the cab doors and windows must be closed. Switch off the system before starting up the engine. Ensure that the cab air filter is clean.*

NOTE: *If the air conditioning system has not been used for some time, unlock the compressor before starting the engine by rotating the pulley nut with a wrench.*

IMPORTANT: *To prevent seizure of the compressor and keep the cooling system in good condition, the air conditioning must be operated for a few minutes at least once a week, even in winter.*

NOTE: *Have the refrigerant level checked by your dealer once a year.*

WARNING:
Do not attempt to disassemble any part of the air conditioning system.

Manual air conditioning

(1) Manual ventilation control knob
(2) Thermostat (minimum/maximum) control knob
(3) Heating (minimum/maximum) control knob

Fig. 31. I005373

Operation

1. When the engine is running, turn knob (3) to the left (cold) and move knob (2) to minimum position.
2. Move fan switch (1) to fast position (fan symbol side).
3. When the required cab temperature is reached, adjust the heating knob and rotate knob (2) if required to maintain a comfortable temperature.
4. Reduce the speed of fan (1) and adjust the temperature using knob (3) to obtain a comfortable temperature.

Stopping the air conditioning: Move fan knob (1) and thermostat knob (2) to zero position to stop the air conditioning.

NOTE: *If a low fan speed and a low temperature are used for long periods, the evaporator may start to ice up. If icing occurs, adjust the temperature control knob to raise the temperature and, if the icing continues, increase the fan speed.*

Automatic air conditioning (optional)

General specifications

(1) Manual/automatic fan control
(2) Digital display (LCD)
(3) Compressor ON/OFF button
(4) Defroster button
(5) Recirculation button
(6) Temperature control knob

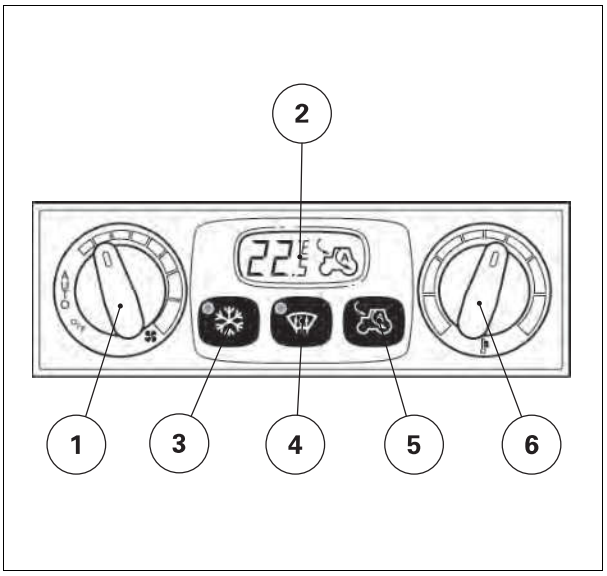


Fig. 32. I005374

The temperature inside the cab is controlled automatically by the air conditioning system, which controls the air temperature at the air vents, fan speed, recirculation and compressor operation.
The required temperature can vary by increments of 0.5°C (1°F) between 20-24°C (68-76°F) and by increments of 1°C (2°F) outside this temperature range.

Temperature scale in Celsius and Fahrenheit:

°C	°F
LO	LO
18	64
19	66
20	68
20.5	70
21	71
21.5	72
22	73
22.5	74
23	76
23.5	77
24	79
25	81
26	83
27	HI
28	
HI	

The HI and LO displays and tractor icon indicate the upper and lower recirculation limits.

Operation at tractor start-up

All manual actions carried out before the tractor is switched off are stored.

When the tractor is started, these actions are suggested in successive order (with the exception of the defrosting function).

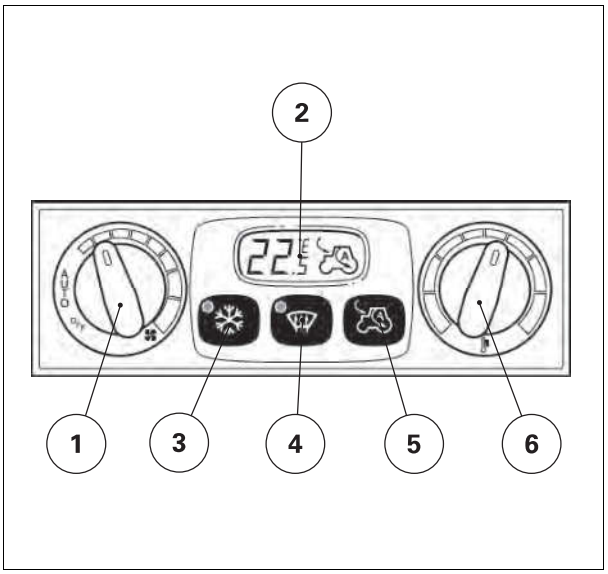


Fig. 33. I005374

Pre-selecting the cab temperature

Preselect the required temperature using knob (6). The preselected value is shown on the LCD display (2).

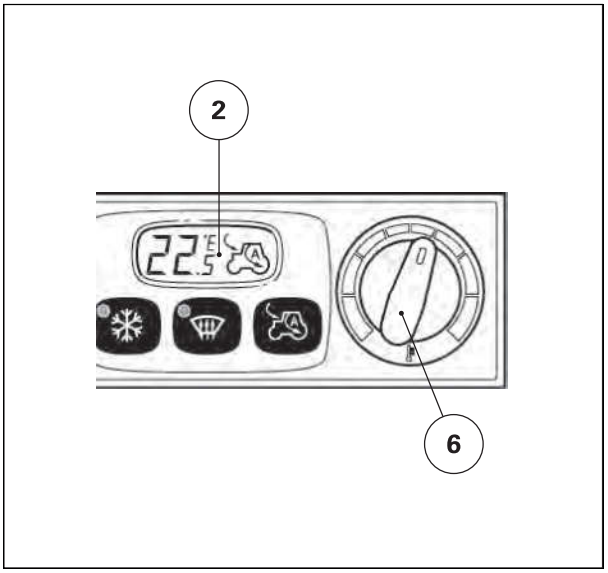


Fig. 34. I005375

Changing the display from Celsius to Fahrenheit

1. Switch off the tractor ignition.
2. Move fan switch (1) to OFF position
3. Move temperature knob (6) to maximum heat position (red)
4. Switch on ignition and, within 5 seconds, press defroster button (4) and recirculation button (5) simultaneously.
5. The temperature symbol (°C or °F) will appear on the LCD screen.
6. Turn the fan control knob (1) to the AUTO position.
7. Turn the knob (6) to adjust the temperature and confirm the unit of measurement.

NOTE: *When there is a problem or error, an "E" symbol is displayed to warn the user. (Contact your dealer to determine the cause of the problem.)*

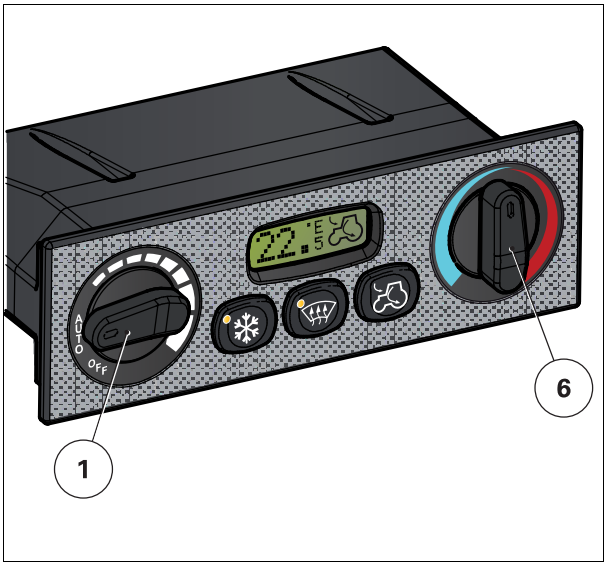


Fig. 35. I013144

3

Maximum temperature

To reach maximum temperature, adjust the cab temperature to over 28 °C (82 °F).
Air conditioning is in ON position (A/C LED is lit)
"HI" is displayed on the LCD screen.

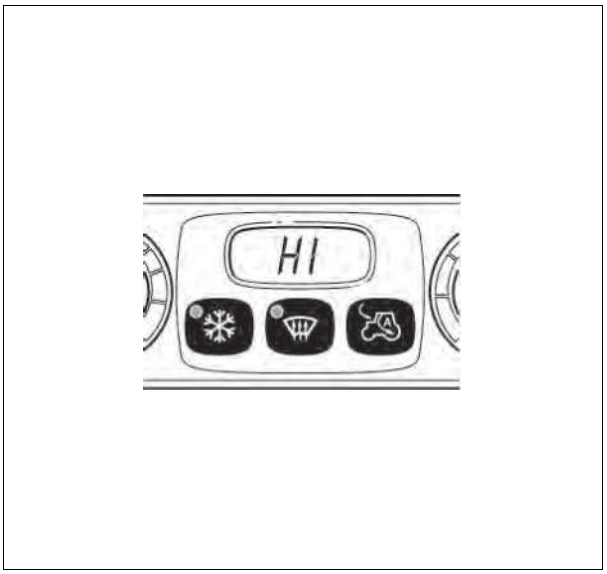


Fig. 36. I005376

Minimum temperature

To reach minimum temperature, adjust the cab temperature to below 18 °C (64 °F).
activation of the compressor (A/C LED lit up)
"LO" is displayed on the LCD screen.

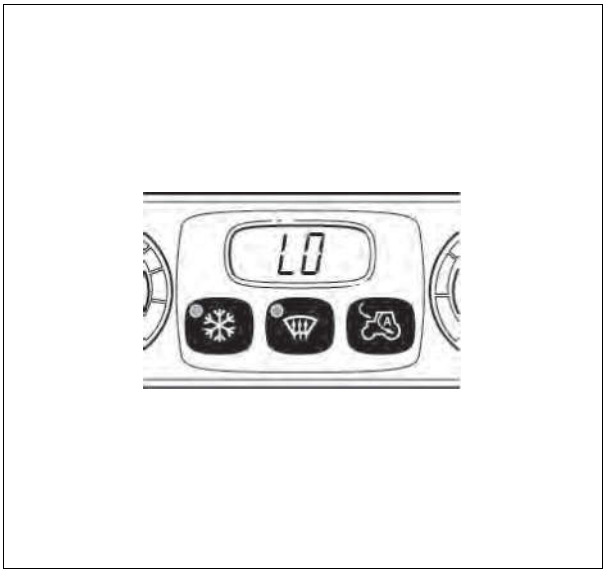


Fig. 37. I005377

Defrosting function

The defrosting function is activated by pressing button (4).
The relevant indicator lights up.
The compressor is activated (A/C LED is lit)
"HI" is displayed on the LCD screen.

To deactivate the defrosting function and return to the previous state, press the button (4) again (the indicator light goes out); otherwise, it will switch off automatically after 3 minutes.

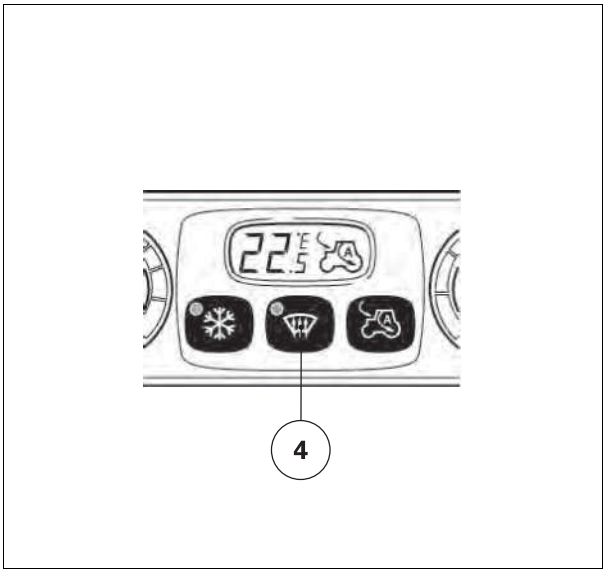


Fig. 38. I005378

Air flow adjustment

When the fan control knob (1) is in auto position ((A)), air flow is selected automatically. Air flow changes are gradual.

It is possible to manually select a different airflow from that selected automatically by turning the knob to a different position. The air flow changes immediately.

Depending on the level of solar radiation, the air flow adjusts automatically if the required temperature is lower than the outside temperature, and the LCD temperature display flashes.

Air flow can be adjusted to maintain the temperature inside the cab at pre-selected levels.

Stopping the automatic function. Move the fan control knob (1) to the OFF position (B).

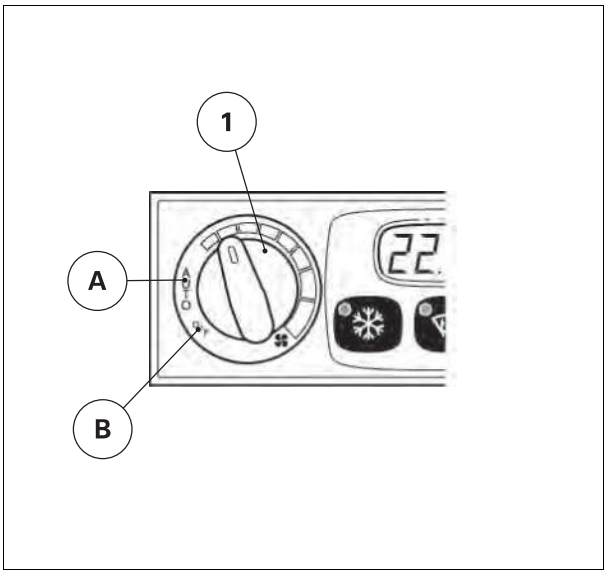


Fig. 39. I005379

Air conditioning button

Turn on the cab air conditioning by pressing the button (3). The corresponding indicator light comes on.

The air conditioning compressor is activated to maintain the required temperature level.

To deactivate it, press the button (3).

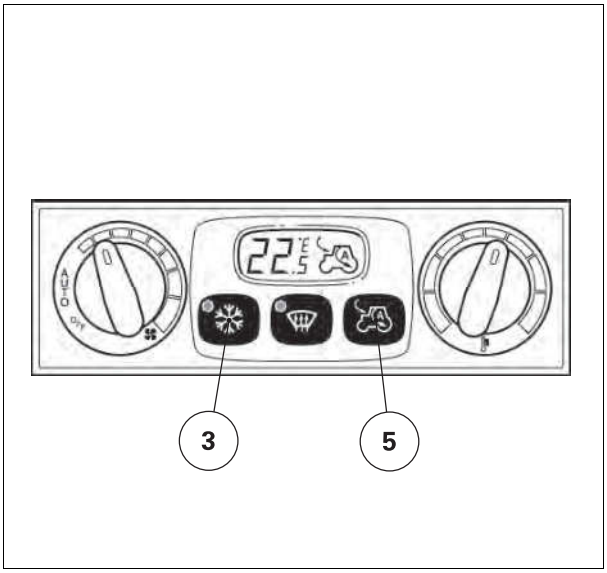


Fig. 40. I005380

Recirculation

The tractor icon indicates the recirculation status on the LCD screen.

NOTE: *The adjustment in automatic mode varies according to the outside temperature.*

- If the recirculation button (5) is pressed once, an arrow is displayed inside the tractor icon on the LCD screen.
  The air inside the cab is recirculated in a closed system.
- If the recirculation button (5) is pressed a second time, an arrow is displayed outside the tractor icon on the LCD screen.
  Air is taken from outside the cab.
- If the recirculation button (5) is pressed a third time, automatic control is restored. The letter A (automatic) appears in the tractor icon.

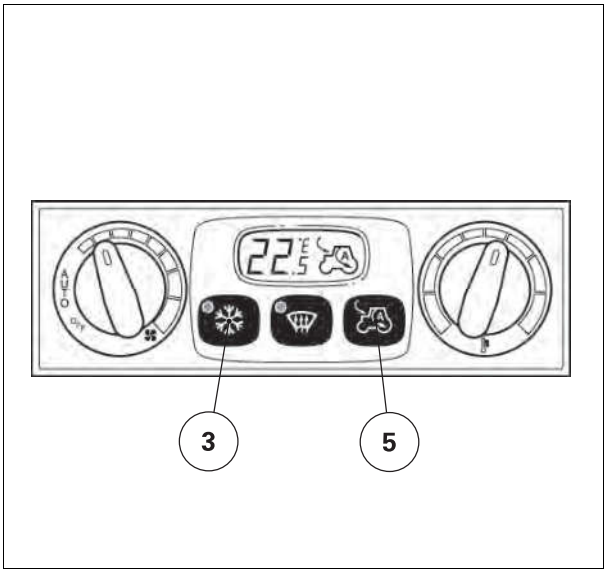


Fig. 41. I005380

IMPORTANT: *Each time the unit is activated, if the external temperature is higher than a pre-determined level, wait 2 minutes to change the air inside the cab before overriding the recirculation function.*

NOTE: *If external temperatures are high, it is advisable to work with the system in recirculation mode, with control knob (1) in automatic position.*

3.1.14 Accessories sockets

T006423

(34) Electrical connector for connecting monitoring screens, control units, and other accessories
(35) Diagnostics connector.
(36) Cigarette lighter

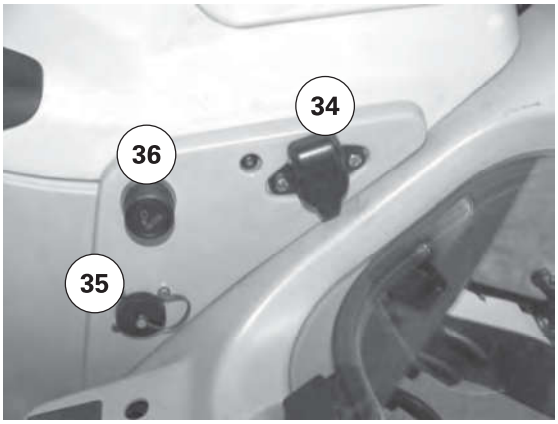


Fig. 42. I005470

Electrical connector for connecting monitoring screens, control units, and other accessories (34).

Maximum available power:
- Terminal 1 "+" permanent (30 Amp)
- Terminal 2 "+" ignition on (5 Amp)
- Terminal 3 earth

NOTE: *A female plug (P/N 1714005) which connects to this power socket is available from your dealer.*

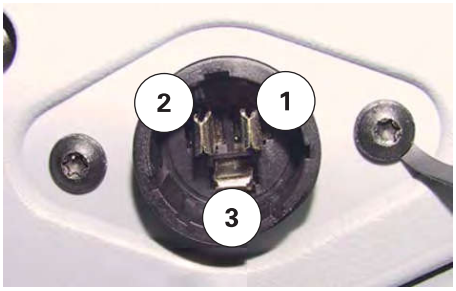


Fig. 43. I005472

3.1.15 Sun visor

T006907

Front window

1. To adjust the sun visor, pull down vertically to desired position.
2. To raise the sun visor, pull the cord (1).

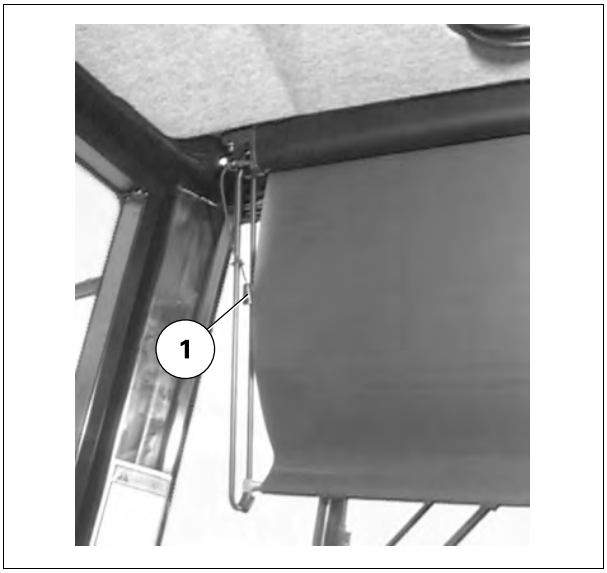


Fig. 44. I003367

Side window: Raising/lowering

1. To adjust the sun visor, pull down vertically to desired position.
2. Push up on the right-hand side to raise the sun visor.

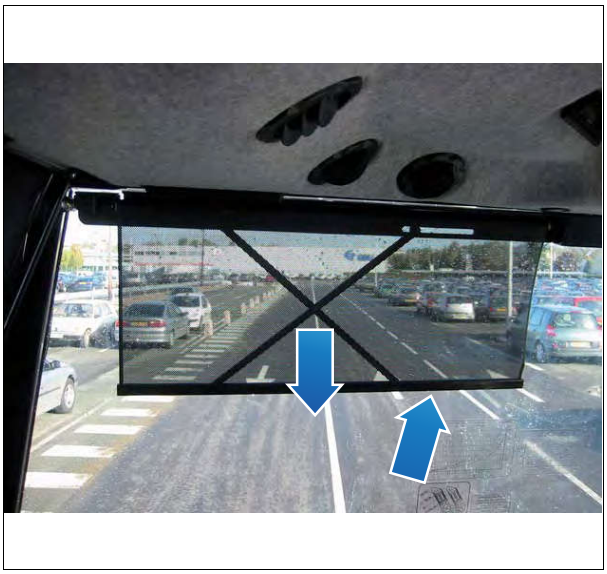


Fig. 45. I017495

Side window: Vertical position/horizontal position

The position of the sun visor can be changed so that it provides protection in a vertical or horizontal position.

1. To modify the position of the sun visor, pull the upper right-hand section towards you to release it from its fixing and rotate it towards the front right-hand pillar to engage it in the new location and then unfurl it horizontally.

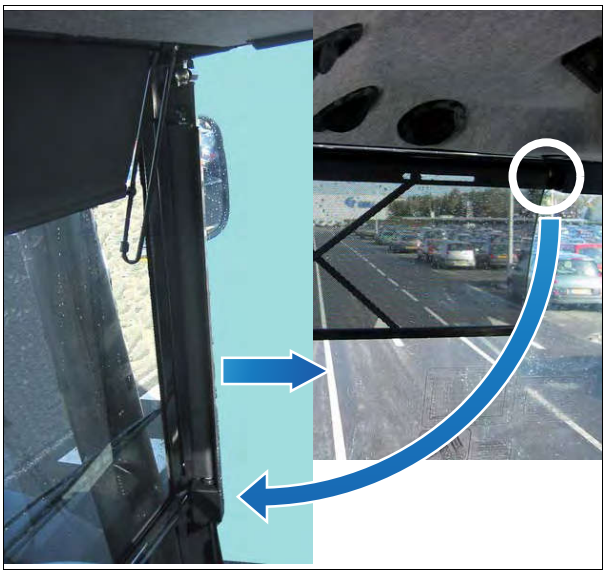


Fig. 46. I017496

3.1.16 Roof hatch

T000951

Standard roof hatch

This hatch has 2 functions:

1. Ventilation function
   The hatch is opened by pressing button (1), which is located on the handle, and pushing the hatch upwards using handle (2).
   To close the hatch, pull handle (2) and make sure that the lock is correctly engaged.
2. Emergency exit function
   To open the hatch fully (emergency exit), press button (1) to unlock the hatch and then push hard on handle (2) to force the gas rams from their holders.
   To close the hatch, pull it downwards using handle (2), taking care to ensure the ends of the gas ram rods engage in the supports. Continue pulling the hatch downwards until the lock is fully engaged.

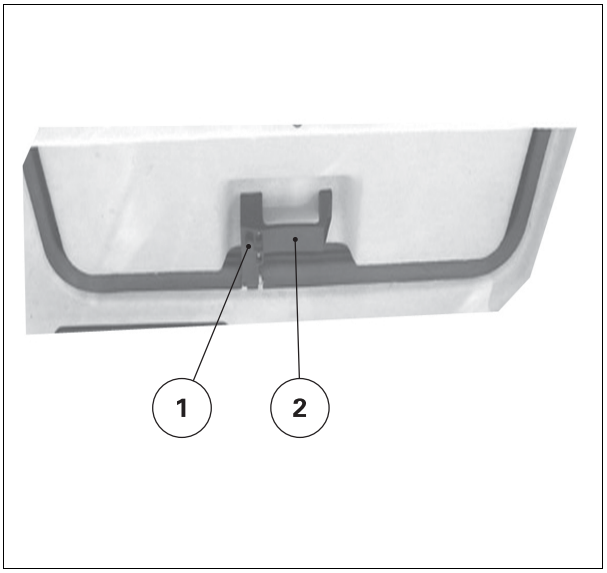


Fig. 47. I003368

High-visibility roof hatch

The high-visibility roof hatch may also be used as an air vent.
It is opened at the front by turning the two locks (1) located at either side of the hatch.

Opening:

1. Turn the two locks (1) to release the hatch.
2. Push upwards as per (2) to open it partially
3. Slide the glass backwards as per (3) to open it completely

Closing:

1. Slide the glass forwards
2. Pull it downwards
3. Turn the two locks (1) to lock the hatch.

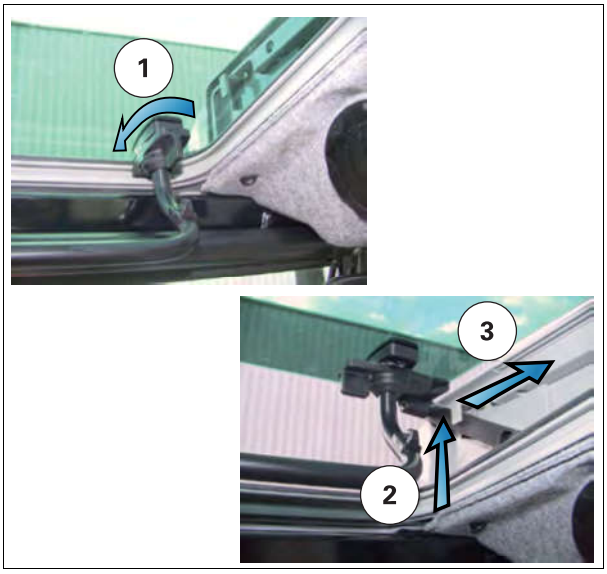


Fig. 48. I003369

3.1.17 Suspended cab

T001779

Cab suspension flexibility can be adjusted depending on different comfort requirements (road or field work).

Adjustment:

– Road position (firmer, trailer symbol on the switch): Move the switch (A) to position (1) to increase the firmness of the suspension.
– Field position (softer, plow symbol on the switch): Move the switch (A) to position (2) to soften the suspension.

NOTE: *It is advisable to move back into field position at the end of the working day or before any long period of no use.*

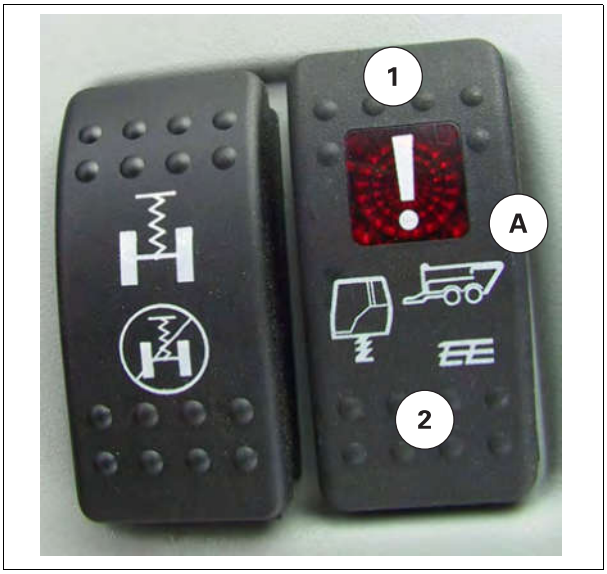


Fig. 49. I005746

3.1.18 Wheel chock(s) (optional)

T003464

Wheel chock location

Located on the right-hand side above the battery compartment, the folding chock(s) (depending on option) immobilize the tractor when required.
Unscrew the wing nut to slide the chock out of its housing.

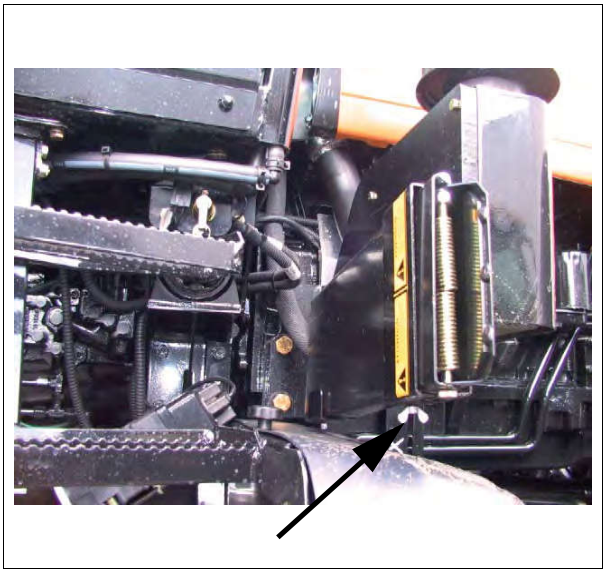


Fig. 50. I009899

Using the wheel chock

1. Once the wheel chock has been extracted from its housing, place it on the ground with the larger side face down.
2. ***CAUTION:***
   The chock springs open automatically.
   Hold down the top of the chock and press (1) to open.

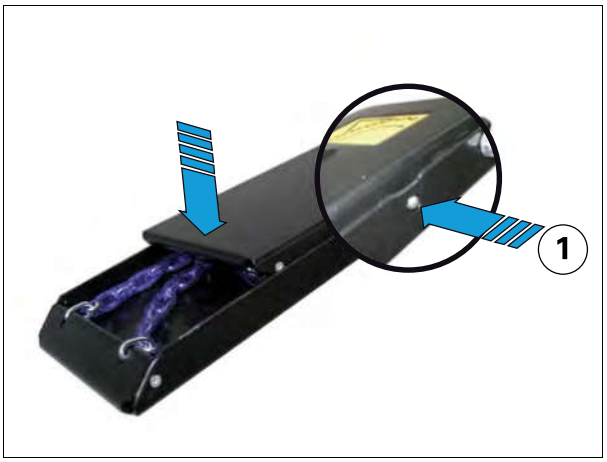


Fig. 51. I017852

3. Gently release the top of the chock.

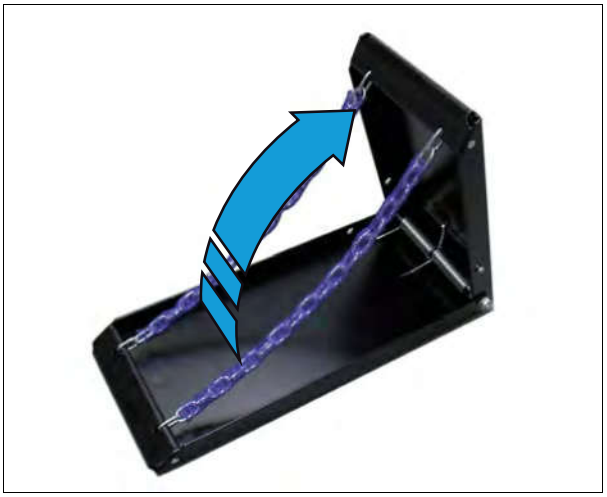


Fig. 52. I017855

4. ***IMPORTANT:*** *Ensure the chock is facing in the right direction before placing it under the vehicle.*

   To immobilize the tractor, position the chock underneath a wheel as shown.

Fig. 53. I017857

3.2 DOT Matrix screen

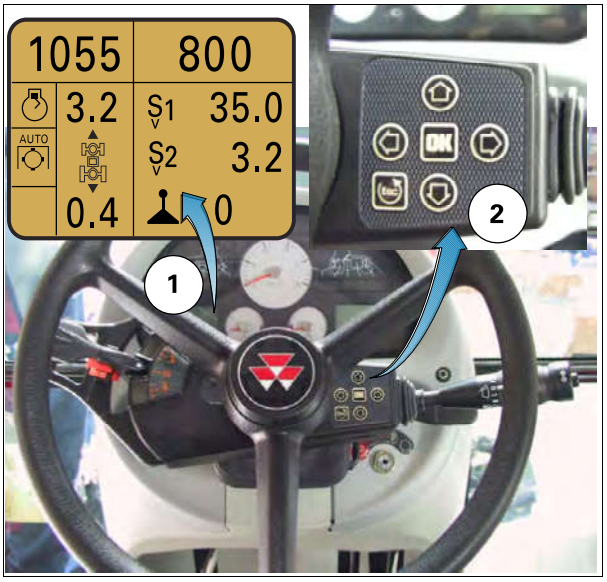
3.2.1 Using the instrument panel control screen

T001536

3

(1) DOT Matrix screen
(2) DOT Matrix controls

The instrument panel screen initializes when the tractor is started. To access the various menus, simply press the left or right keys on the control keypad and follow the instructions described in the table below *see §3.2.2, page 89*.



I017266

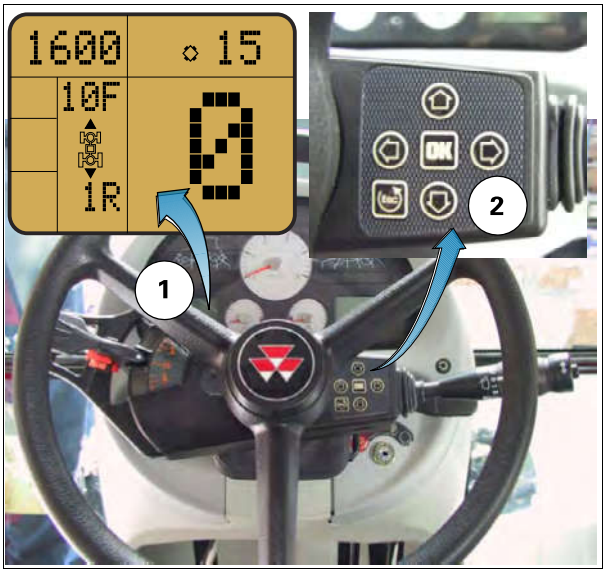
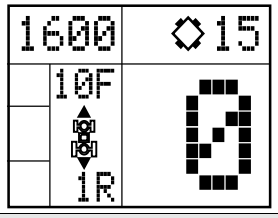
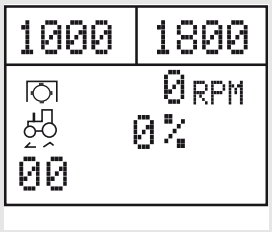
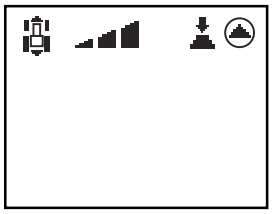
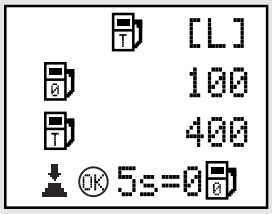
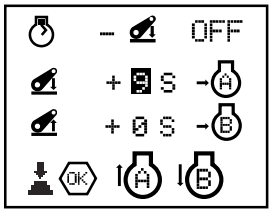
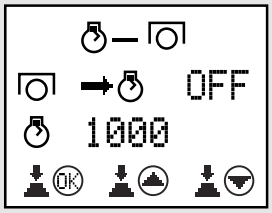


Fig. 1.

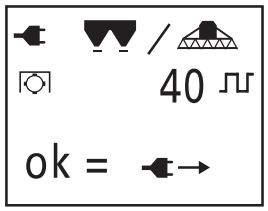
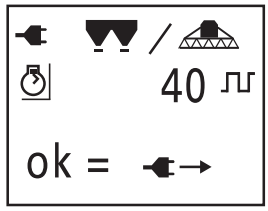
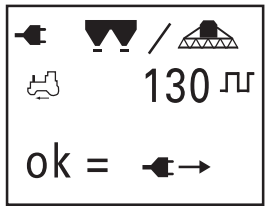
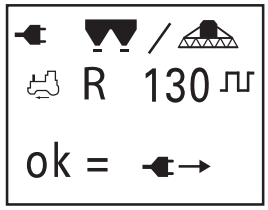
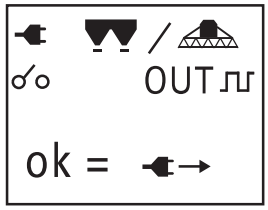
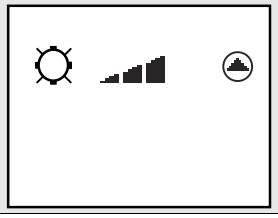
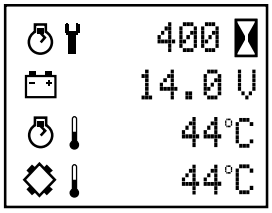
I017264

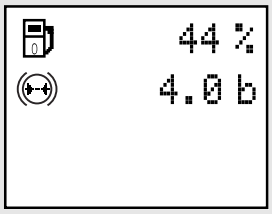
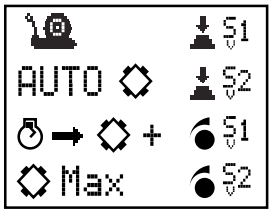
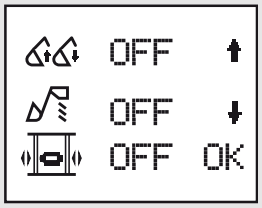
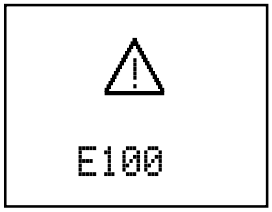
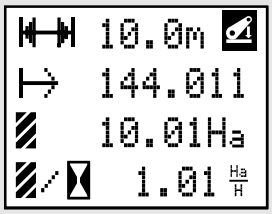
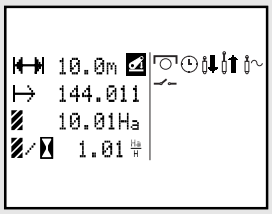
3.2.2 Dot Matrix screens

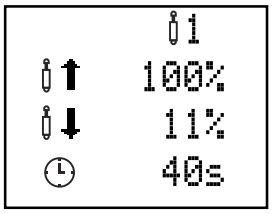
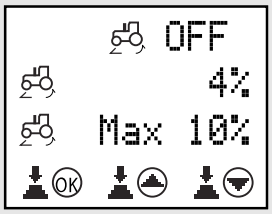
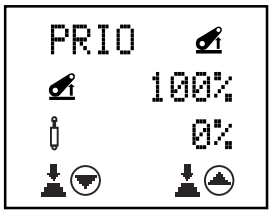
T006639

Screen	Function
	**Dyna-Step mode main screen** Displays the start-up ratios, the engine speed, the AutoDrive maximum ratio (if this function is active), and the engaged ratio.
	**Working mode main screen** Displays the stored engine speeds, the selected PTO speed, the wheel slip percentage, and the actual speed
	**Transmission settings screen (if Datatronic 3 is installed)** Adjusts the reverse shuttle sensitivity (from 1 to 4).
	**Fuel counter screen** Daily counter, quantity of fuel consumed since the last zero reset Total counter, total quantity of fuel consumed The daily counter can only be reset to zero by pressing key OK for 5 seconds.
	**Headland screen** This menu is used to adjust the engine speed when changing linkage status (work or transport). The operating conditions are: ON mode - Power Control lever not in neutral - a forward gear when the linkage transport mode is selected, engine speed B is activated after the preset time when the linkage working mode is selected, engine speed A is activated after the preset time
	**Rear PTO/engine speed automation screen (optional)** This screen is used to engage an engine speed during activation of the rear PTO using the controls located on the fenders. OK Activates or deactivates the automated function Increases or decreases the engine speed that will be engaged

3

Screen	Function
	**PTO speed output selection screen** Activates the fixed reference frequency (40 Hz) for the PTO speed on the 16-way connector. OK Used to continue to the next screen. To display from the previous screen.
	**Engine speed output selection screen** Activates the fixed reference frequency (40 Hz) for the engine speed on the 16-way connector. OK Used to continue to the next screen. To display from the previous screen.
	**Theoretical forward speed output selection screen** Activates the fixed reference frequency (130 Hz) for the theoretical forward speed on the 16-way connector. OK Used to continue to the next screen. To display from the previous screen.
	**Actual forward speed output selection screen** Activates the fixed reference frequency (130 Hz) for the actual forward speed on the 16-way connector. OK Used to continue to the next screen. To exit the Frequency menu
	**Additional switch control selection screen** Used to activate the switch input on the 16-way connector OK Used to continue to the next screen. To display from the previous screen.
	**Brightness adjustment screen** This screen is used to adjust the brightness of the instrument panel. Adjusts the instrument panel brightness level.
	**Diagnostics screen 1** Number of hours until the next service period The default value of 400 hours can be reset by pressing the OK key for 5 seconds. Battery voltage Engine temperature Transmission temperature

Screen	Function
	**Diagnostics screen 2** Diesel fuel tank level Pneumatic brake pressure
	**Dyna-Step mode help screen** This screen allows the operator to check the various controls used for Dyna-Step mode at any time. S1 Engages creeper range (provided that Tortoise range is engaged) S2 Engages the AutoDrive function S1 Sets the maximum engine speed for AutoDrive S2 Sets the maximum ratio for AutoDrive
	**Front-end loader screen (optional)** Displays the locking/unlocking of the accessory installed, opening/closing of a bucket, activation of the jaws, and activation of damping on the loader. To activate/deactivate the automatic bucket function. If the function is "ON", "F3" and "F4" appear at the bottom of the screen. To activate/deactivate the front-end loader suspension OK To unlock/lock the accessories fitted at the front of the loader. ON = function active OFF = function inactive ***NOTE:*** *For further details on this function, refer to the section on the front-end loader in this manual.*
	**Error code screen** This screen appears as soon as a tractor-related error is active.
 	**Area worked counter screen (if Datatronic 3 is not installed)** This screen displays the distance covered, the area worked, and the area worked per hour. Adjusts the working width of the implement. OKThis is used to select the event activation for counting; Never/All the time/Rear linkage in working position/PTO activated/Spool valve 1 in Kick-out + (plus)/Spool valve 1 in Kick-out - (minus)/Spool valve 1 in floating position.

Screen	Function
	**Hydraulic spool valves settings screen (if Datatronic 3 is not installed)** This screen is used to set the spool valve flow rates and the Kick-out activation times (1 screen per spool valve) OK Entry into settings mode (a spanner appears at the top of the screen) Selects the value to be modified (highlighted) Increases or decreases the stored value
	**Wheel slip control screen (if Datatronic 3 is not installed)** This screen is used to activate/deactivate wheel slip control, to set the maximum permissible wheel slip, and to display the actual amount of wheel slip OK Activates/deactivates wheel slip control Increases or decreases the maximum permissible wheel slip (from 0 to 100%)
	**Hydraulics/linkage priority screen (if Datatronic 3 is not installed)** This screen is used to give priority to the auxiliary spool valves over the linkage and vice versa. Increases/decreases the distribution of the flow rate to the auxiliary spool valves and the linkage

3.3 Body

3.3.1 Opening the hood

T001747

The hood can be raised to provide free access to the engine.

To open:
Press button (A) *fig. 1* and lift the hood.

To close:
Pull the retaining strap and lock the hood using the moulded indents.

IMPORTANT: *If the tractor is fitted with a front-end loader, the grille cover must be in the low position before the hood is opened or closed.*

Fig. 1. I005666

Fig. 2. I005667

3.4 Engine

3.4.1 Running-in

T000953

– Experience has shown that the first 50 hours of tractor operation have a significant effect on the performance and life of the engine.
– From the first operation, the tractor must run with the engine at full load. The engine should be allowed to reach a temperature of 60 °C (140 °F) before being subjected to full load.
– It is quite normal for oil consumption to be on the high side during the running-in period. Therefore, during running-in, the engine oil level must be checked twice a day during the first 50 hours of operation to avoid the risk of lubrication failure.
– During running-in, check the tightness of all nuts, bolts and screws frequently. The wheel nuts must be retightened daily until their torque has stabilized (see chapter 5).

3.4.2 Filling with fuel

T006662

WARNING:
Always switch off the engine before filling up.
Do not smoke while refueling the tractor.
Keep away from open flames .
Wear suitable gloves when filling up.

Diesel fuel

The filler port is located on the left-hand side of the tractor.
The tank is filled after removing the BLACK plug ((1)).

Fig. 1. I016285

Biodiesel

This type of fuel is compatible with SisuDiesel Tier 3 engines, except for E3 engine with DEF technology (refer to the chapter on recommended products).
If the proportion of biodiesel added is over 5%, the engine servicing intervals must be halved (refer to the chapter with the maintenance chart).
This type of fuel normally results in a slight drop in engine performance.

IMPORTANT: *Vegetable oils, cold-pressed oils... or indeed any other unesterified oils must not be used. Alternatives such as ethanol and methanol must not be used either. Failure to observe this will invalidate the warranty.*

3.4.3 Start-up

T001673

DANGER:

Never run the tractor in an enclosed space unless the exhaust can be ventilated to the outside air. Never run the engine unless you are sitting at the steering wheel of the tractor.

WARNING:

Check that the Power Control controller is in neutral and that the ParkLock is engaged. Place the PTO control in NEUTRAL.

NOTE: *Also refer to the instructions in the startup sheet.*

Procedure

1. Turn the ignition key to the **ON** position. The indicator lights on the instrument panel should light up.
   NOTE: *When the ignition is turned on, the TC and DC symbols display alternately on the instrument screen. The numbers underneath TC and DC correspond to the program versions installed and are for your dealer's reference.*
2. Depress and hold down the clutch pedal.
3. Turn the key to the preheating position and hold there for 2 seconds.
4. Start the engine and release the key.
5. Release the clutch pedal.

3.4.4 Start-up sheet

T006660

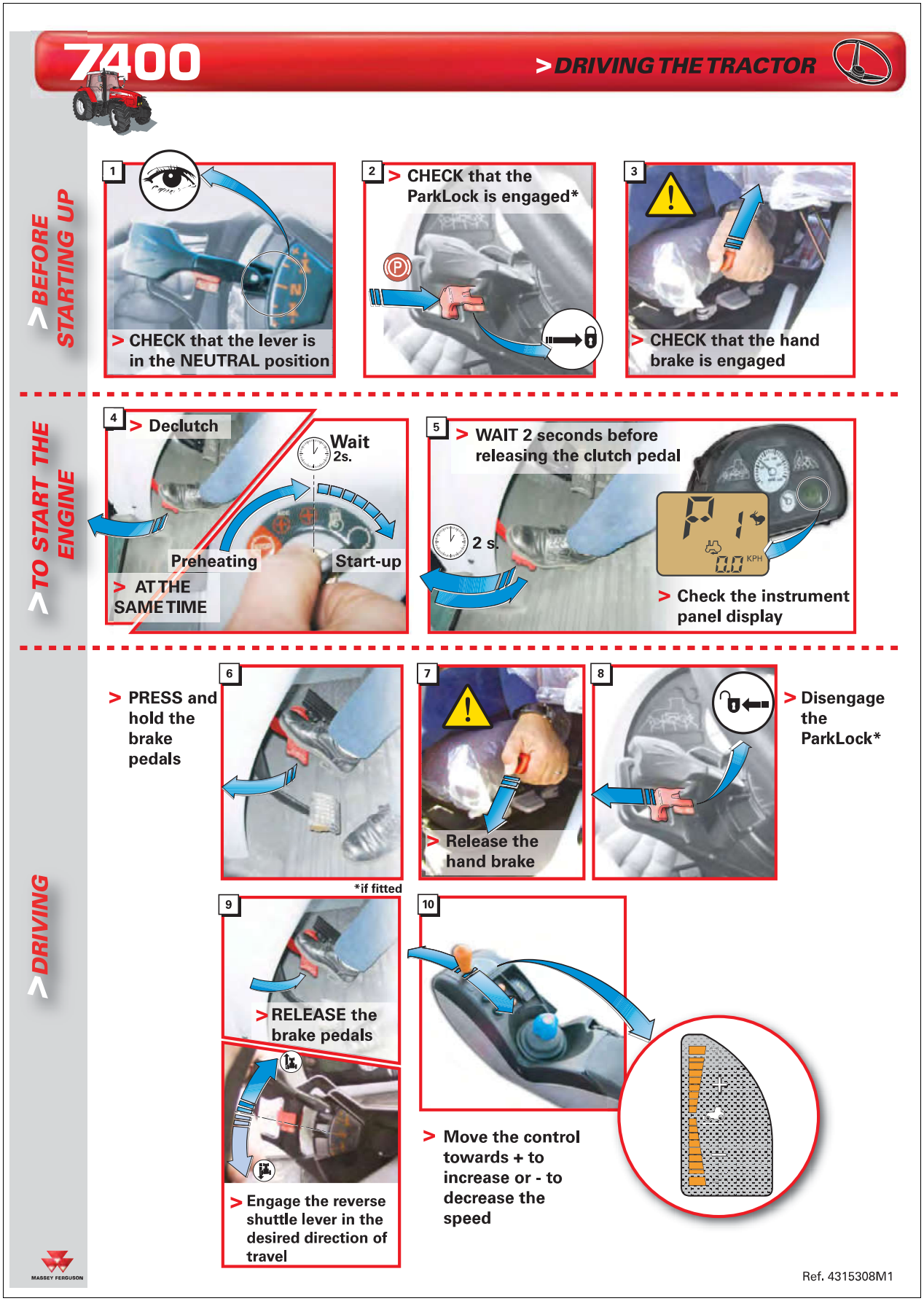


Fig. 2.

I016292

3.4.5 Cold weather starting

T006426

A 1000 W preheater and connection cable are provided to assist cold weather starting. The preheater operates at 110 V and normally heats the engine coolant in two hours. In extreme cold, it may be required to operate all night.

WARNING:

DO NOT test the heating element unless it is immersed in coolant. It is dangerous to connect a heating element in the open air, as the heat released can cause injury and the element could explode.

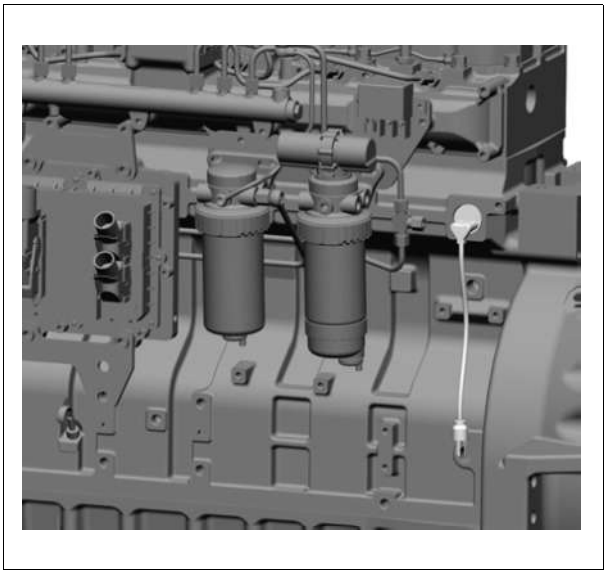


Fig. 3. I005483

3.4.6 Stopping the engine

T000956

1. After stopping the tractor, allow the engine speed to return to idle.
2. Leave the engine running for several seconds at idle speed. This is necessary to allow the turbocharger to reduce speed.
3. ***IMPORTANT:*** *Do not stop the turbocharger engine suddenly when the engine is running at a high speed, because the turbine will continue turning under its own inertia but will no longer be lubricated. Slow the engine before stopping it.*

   Return the ignition key to the "Stop" position.

3.4.7 Engine speed

T001675

IMPORTANT: *Protection against engine overspeed: From 2700 rpm, the engine operates in "automatic degraded" mode and downshifting of gears is prevented electronically as long as the engine speed does not drop below 2400 rpm.*

3

Foot throttle

Use of the foot throttle enables you to exceed the engine speed set by the hand throttle. When the foot throttle pedal is released, the engine rpm returns to that set by the hand throttle.

CAUTION:

- ***When using the foot throttle, the hand throttle should be placed in the idle position.***
- ***Do not keep your foot on the clutch pedal or keep it halfway engaged.***
- ***Always descend slopes with the tractor in gear and the clutch disengaged.***
- ***When turning on headlands with heavy mounted implements, reduce the engine rpm.***
- ***Steering is not power-assisted when the engine is not running.***

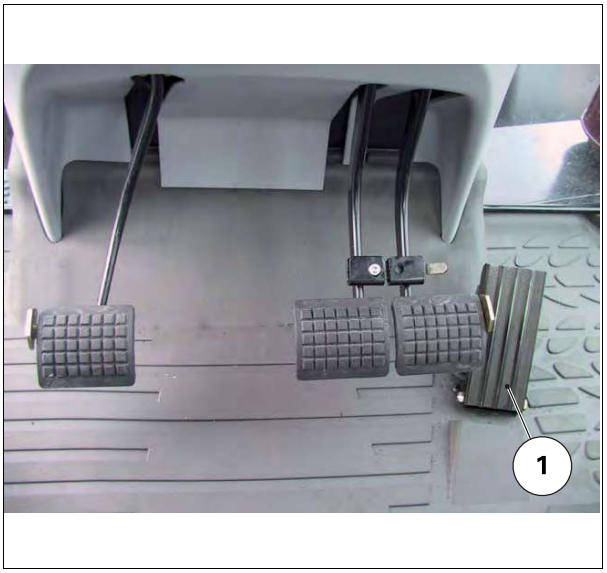


Fig. 4. I017869

Hand throttle

Using the hand throttle allows you to vary the engine speed and to maintain a constant speed.

- To do this, simply push or pull the lever to select a speed.
- The lever remains in this position to maintain the selected speed.
- The lever in rear position corresponds to idle speed.

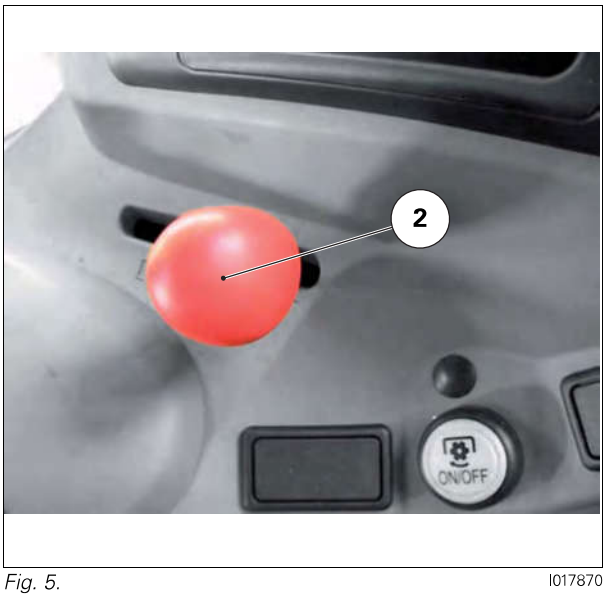


Fig. 5. I017870

Choosing the correct gear ratio

- Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission.
- Bear in mind that soil conditions can vary within a few yards in the same field.
- Select a ratio which allows the engine to operate comfortably at about 75% of its maximum power.

Preselecting A/B engine speeds

This function allows the operator to have permanent access to two stabilized engine speeds.
This means he can activate stored engine speed "A" when working (e.g., 2000 rpm) and he can activate stored engine speed "B" when carrying out maneuvers (e.g., 800 rpm).
There are two procedures for storing engine speeds:

Pre-selecting the required engine speed using the foot or hand throttle:

- Select the required engine speed using the foot or hand throttle
- Press and hold memory button "A" or "B" for 1 to 2 seconds. The speed is then stored
- The value of the stored speed is highlighted on the DOT Matrix screen (example: stored speed "A").
- The engine symbol appears on the digital display along with the letter "A" or "B", which indicates the active stored engine speed
- Carry out the same procedure for both memories "A" and "B".
- To change the value of the stored engine speed, press "+" or "-" on the switch. Each press increases the engine speed value by 10 rpm. Continuously apply pressure to rapidly increase or decrease the engine speed to be stored.
- To deactivate engine speed storage, press the activated memory switch again ("A" or "B").

If no engine speed has been pre-selected:

- Use the switch to select the engine speed stored for memory "A" or "B", irrespective of its value.
- Change the value of the stored engine speed by pressing "+" or "-" on the switch. Each press increases the engine speed value by 10 rpm. Continuously apply pressure to rapidly increase or decrease the engine speed to be stored. The engine speed is stored and activated.
- To deactivate engine speed storage, press the activated memory switch again ("A" or "B").

NOTE: *The speed is saved even if the ignition is switched off.*

If driving with stored speed "A" or "B" activated, press the brake pedals once to deactivate speed storage.

I005890

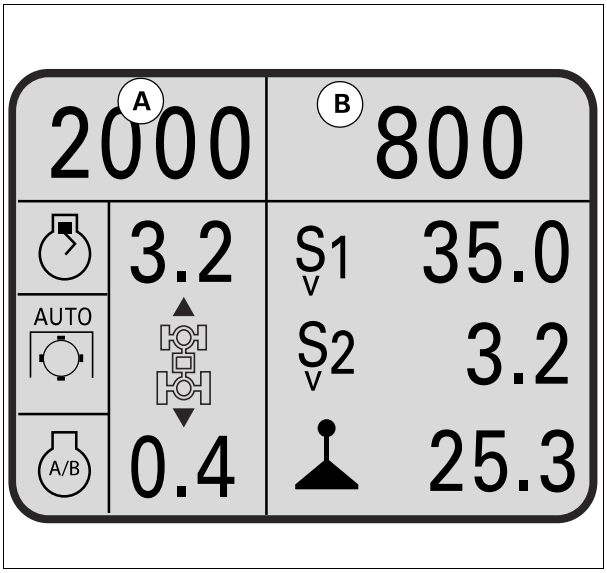


Fig. 6.

I018629

3.5 Transmission

3.5.1 General

T006745

The Dyna-Step transmission is a forward and reverse sequential transmission.

Power is transmitted hydrostatically or mechanically, or hydrostatically and mechanically.
Slow forward travel = Power transmission is mainly hydrostatic/partially mechanical.
Fast forward travel = Power transmission is partially hydrostatic/mainly mechanical.

3.5.2 Coupler clutch function

T001288

Clutch function

Although the transmission has no forward clutch or coupler, the tractor has a clutch pedal. This pedal allows traction effort to be controlled (as with standard clutch slip). When an obstacle appears suddenly, the tractor can be stopped rapidly by pressing the clutch and brake pedals, just like a standard tractor.

Coupler function

Traction power is limited at low engine speed thanks to a proportional solenoid valve located on the transmission hydrostatic loop.
In connection with engine speed, the coupler function is activated by modulating the pressure in the hydrostatic system. The coupler function thus replaces the measured action of a clutch pedal.

Coupler function under traction
The coupler function is activated when the engine speed drops below 1400 rpm; the pressure in the hydrostatic loop decreases in proportion to the drop in engine speed. Like a coupler, the function limits engine overload and avoids stalling. The coupler function can be activated or deactivated from the Dash Control Center*see §3.2.1, page 88* .

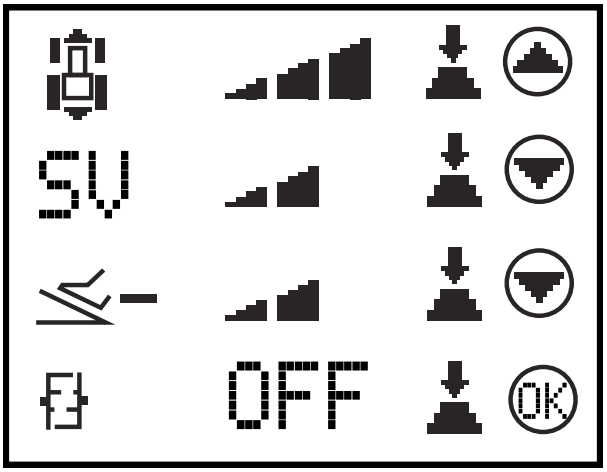


Fig. 1. I004916

NOTE: *The coupler function is "ON" by default at start-up, whatever the status when the tractor stops.*

3.5.3 Range shifting

T006874

The speed ranges can be selected according to the driving mode.

Dyna-Step mode

There are three ranges :

– High speed/hare range (A) for road use.

– Slow speed/tortoise range (B) for field use.

– Creeper/snail range for specific applications requiring low forward speeds.

IMPORTANT: *Always change to a slow or creeper range when working in the field to avoid overheating the transmission.*

	Creeper/ Snail	Slow/Tortoise	Fast/Hare
Number of forward ratios	21	21	21
Forward speed	0 km/h (0 mile/h) to 12 km/h (7 mile/h)	1 km/h (0.6 mile/h) to 32 km/h (20 mile/h)	2 km/h (1 mile/h) to 50 km/h (31 mile/h)
Number of reverse ratios	21	18	15
Reverse speed	0 km/h (0 mile/h) to 12 km/h (7 mile/h)	1 km/h (0.6 mile/h) to 21 km/h (13 mile/h)	2 km/h (1 mile/h) to 28 km/h (17 mile/h)

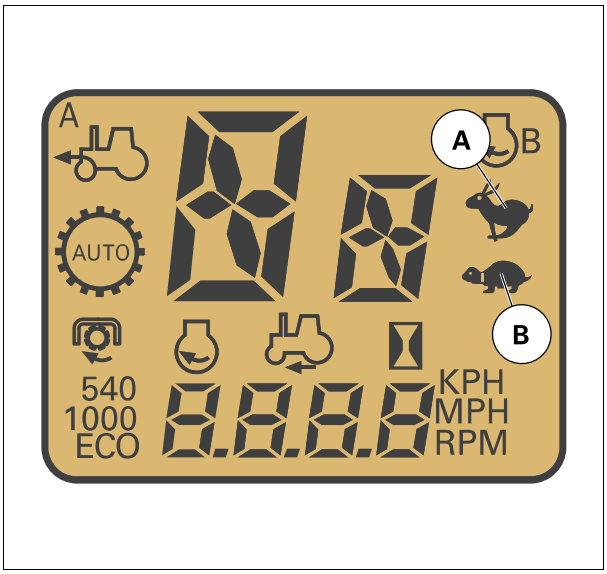


Fig. 2. I017276

Range shifting

Changes between slow and fast range can be made when the tractor is moving, via switch (A) located on the right-hand console.

Speed limit to be observed

– Low-speed range to high-speed range: No restriction

– High-speed range to low-speed range: The forward speed must be less than 25 km/h (16 mile/h).

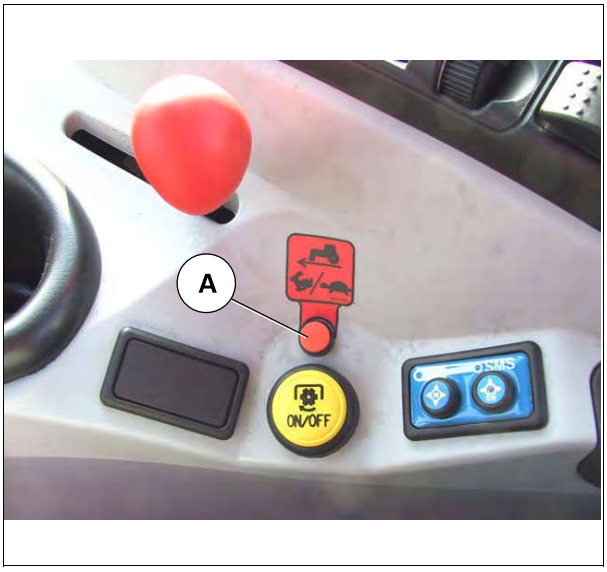


Fig. 3. I017273

3

Shifting to creeper range

To shift to creeper range, engage the slow range then press the armrest switch (B).

Fig. 4. I017275

3.5.4 Power Shuttle

T001291

Principle of the Power Control lever

Control located to the left of the steering wheel
The Power Control lever is used to change direction of travel (forward or reverse) without disengaging the clutch.

It can also quickly modify the transmission ratios.

DANGER:
Use the clutch pedal for all maneuvering (hitching implements, etc.).

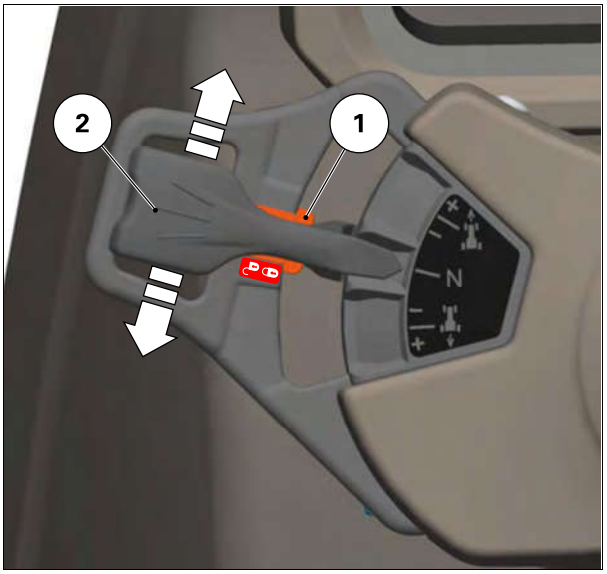


Fig. 5. I004884

Software version[1]	Description
For tractors not equipped with Dyna-TM mode and tractors before version: DC1.10: The Active Stop function is not available.	***DANGER:*** ***Lifting the Power Control lever when it is in forward or reverse travel position disengages the transmission. The transmission is therefore in neutral.***
For tractors equipped with the Dyna-TM mode Active Stop function and from version: DC1.10: These are equipped with the Active Stop system	With the Active Stop version, lifting the Power Control lever and holding it in this position causes a dynamic stop in the transmission. The transmission is hydraulically locked and is not in neutral.

1. The software version is read in the instrument panel's right-hand screen before the engine is started

Using the Power Control lever

(N) Neutral position: The transmission is in neutral.
When the lever is in this position, the electromechanically controlled brake (ParkLock) can be activated.
Electro-mechanical brake (ParkLock): Unlock brake control (1) .*fig. 5*

(1) Moving forward
Position the lever towards the front; the letter **F** appears on the right-hand screen of the instrument panel.

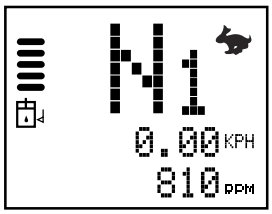
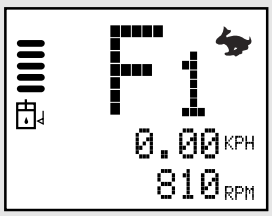
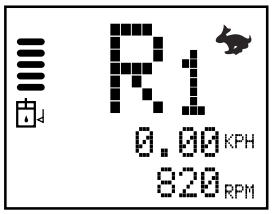
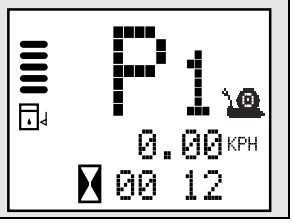
(2) Reverse travel:
Position the lever towards the rear; the letter **R** appears on the right-hand screen of the instrument panel.

(3) Moving towards the **(+)** symbol increases the tractor's travel speed.

(4) Moving towards the **(-)** symbol reduces the tractor's travel speed.

NOTE: *When the tractor is in motion, each change to the direction is made using the control without disengaging the clutch.*

DANGER:
Before leaving the seat, it is essential to engage the parking brake (ParkLock).

Lever position	Corresponding instrument panel screen
Neutral	
Forward	
Reverse	
ParkLock engaged	

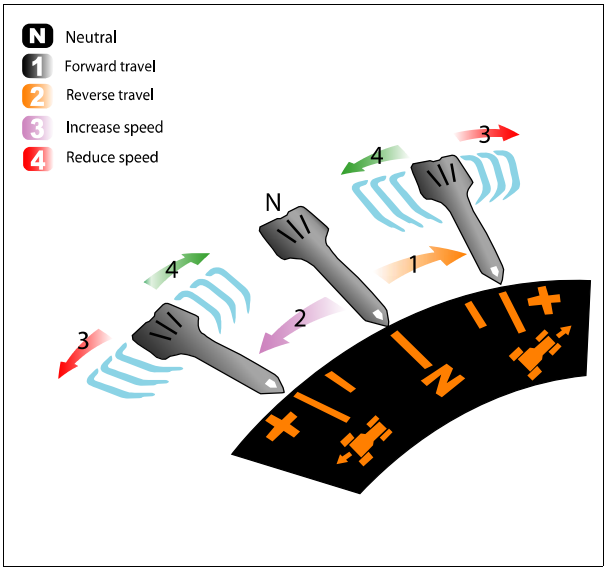


Fig. 6. I011697

Fast shifting

When changing the direction of travel, the tractor slows to a halt, then accelerates in the opposite direction.

Shifting cannot operate while the following functions are active:

- the underspeed supervisor
- the speed regulators
- the coupler function
  If the clutch pedal is pressed during fast shifting, a temporary stop may occur.

3.5.5 Setting start-up speeds

T006749

This function allows a pre-set speed to be reached when changing direction of travel.
The pre-set speed is reached at an engine speed of 1800 rpm.
It is possible to set a restart speed for forward travel (1) and a restart speed for reverse travel (2).

1. With the engine running and the tractor immobilized on flat ground.
2. Keep your foot down on the clutch. The tractor icon (3) flashes.
3. Place the reverse shuttle lever in the direction of the speed to be set.
4. Move the reverse shuttle lever towards the "+" or "-" to set the required restart value.
   NOTE: *If the restart speeds are set to 0, shifting is carried out at the current speed.*
   All of these settings may be different, depending on the range engaged.

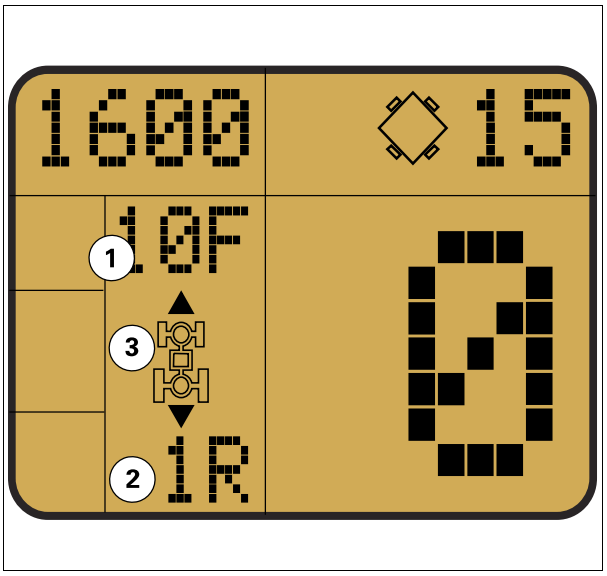


Fig. 7. I005742

Start-up ratios in Dyna-Step mode

	In high speed range:	In low speed range:	In creeper range:
Forward	from 0 km/h (0 mile/h (mph)) to12 km/h (7 mile/h (mph))	from 0 km/h (0 mile/h (mph)) to16 km/h (10 mile/h (mph))	from 0 km/h (0 mile/h (mph)) to21 km/h (13 mile /h (mph))
Reverse	from 0 km/h (0 mile/h (mph)) to15 km/h (9 mile/h (mph))	from 0 km/h (0 mile/h (mph)) to18 km/h (11 mile/h (mph))	from 0 km/h (0 mile/h (mph)) to21 km/h (13 mile /h (mph))

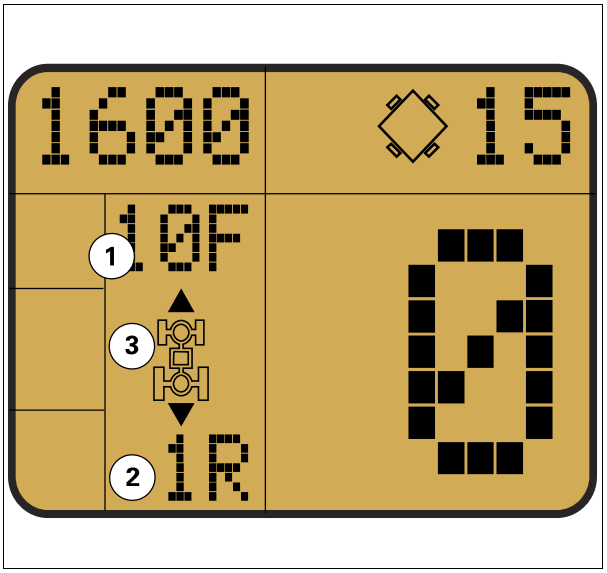


Fig. 8. I005742

3.5.6 Dyna-Step transmission

T006872

This sequential transmission is stepped, with 21 forward speeds and 21 reverse speeds.
It is controlled by pulsing the lever on the armrest or the Power Control controller on the steering column.

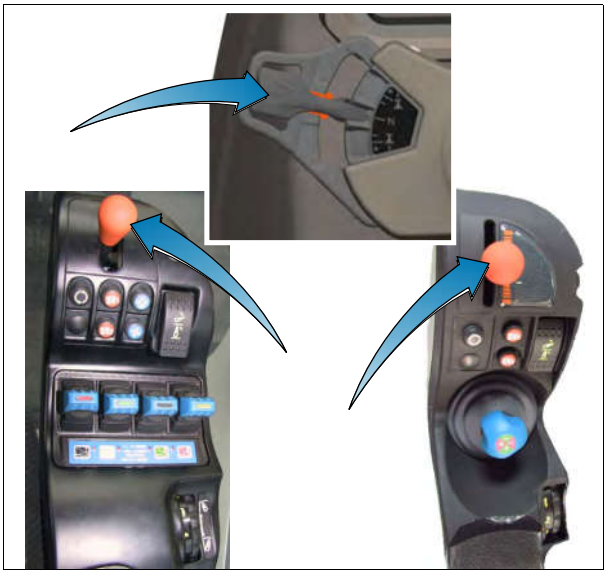


Fig. 9. I017272

(A) Forward start-up ratio
(B) Reverse start-up ratio
(C)) Ratio engaged

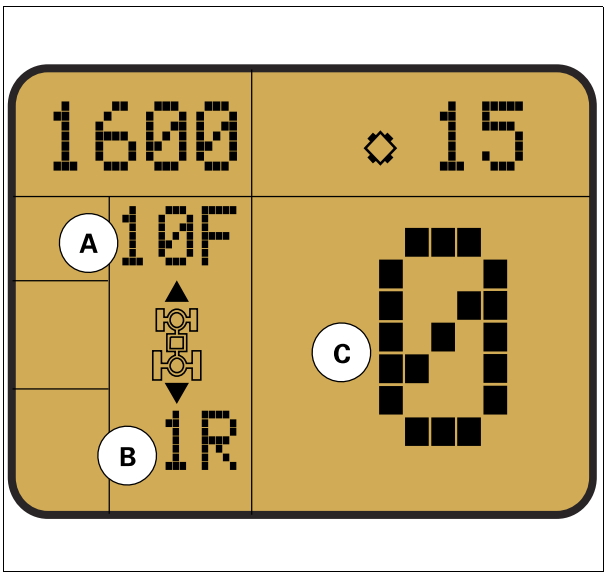


Fig. 10. I005771

3.5.7 Tractor towing

T001295

Towing instructions

WARNING:

The following instructions must be adhered to when towing the tractor:

If the engine is running:

- ***Position the high/low speed range in neutral***
- ***Maximum towing speed 10 km/h (6 mile/h)***
- ***Max. towing distance. 8 km (5.0 mile)***

If the engine is shut down or out of hydraulic fluid:

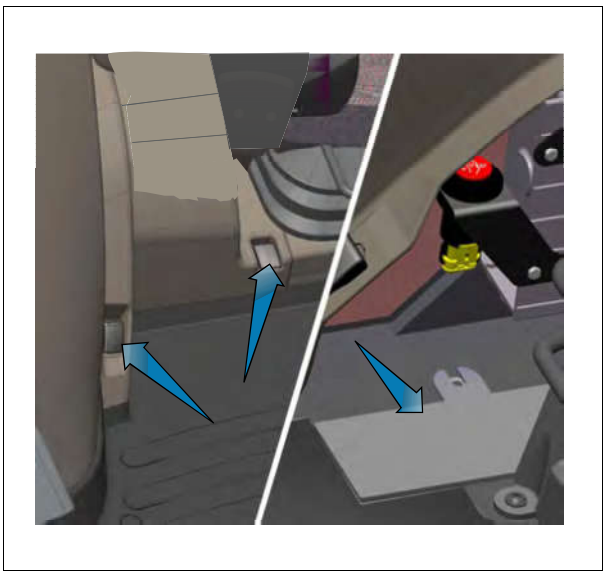
- ***Position the high/low speed range in neutral***
- ***As the gearbox is no longer lubricated when the engine is stopped, transport by trailer is recommended***
- ***Tow the tractor no further than 50 m (164 ft)***
- ***DO NOT EXCEED A SPEED OF 5 km/h (3 mile/h)***

CAUTION:

When towing by hitching onto the front linkage, the pulling force must not exceed 18 t (20 US ton).

Towing procedure:

1. Open the cover plate located on the cab floor (right-hand side).
2. Remove the protective plate.



I007376

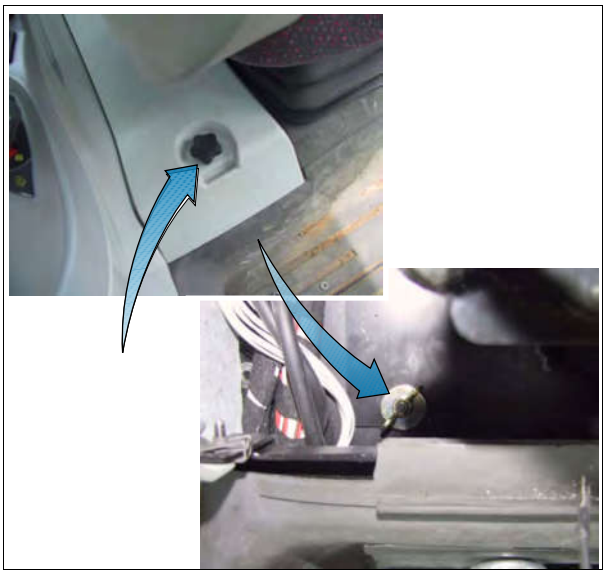


Fig. 11.

I017258

3. Place the limp home lever on the control unit.

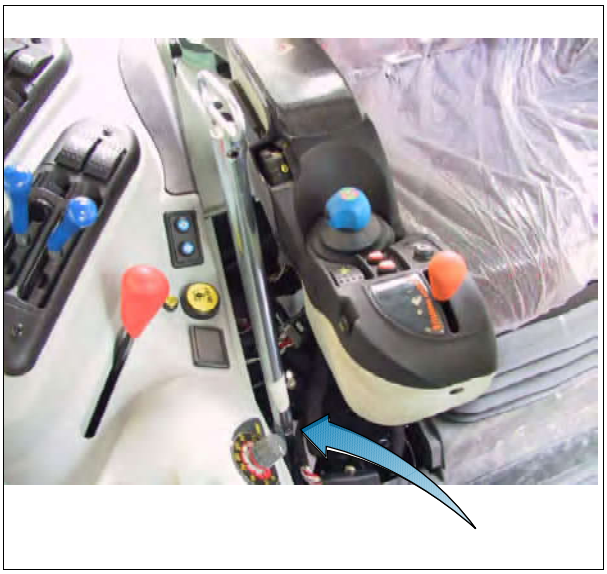


Fig. 12. I017244

4. Place the transmission in neutral (middle position (1))

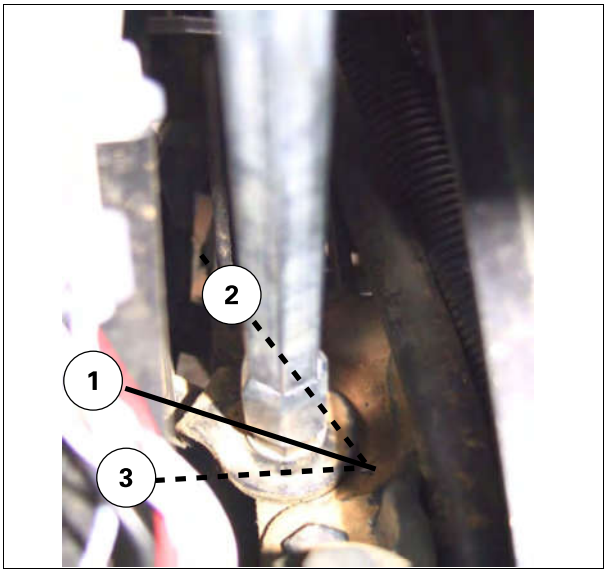


Fig. 13. I017245

5. Release the ParkLock brake. see "Releasing the ParkLock", page 109

Limp home mode

If the transmission ratio control is not possible due to a breakdown, the tractor can be driven mechanically using a limp home lever.
Maximum speed in the high speed range is 34 km/h (21 mile/h) in forward travel and 25 km/h (16 mile/h) in reverse travel.
Maximum speed in the low speed range is 15 km/h (9 mile/h) in forward travel and 11 km/h (7 mile/h) in reverse travel.

IMPORTANT: *When the tractor is stopped, the speed range must be in neutral position (middle position) and the brake must be engaged.*

CAUTION:
Once the engine has been started, the transmission is in full working order once a range (hare or tortoise) is engaged!
The clutch pedal must be engaged with care because any transmission ratio can be preselected.

1. Stop the engine if it is running.
2. Release the ParkLock brake. see "Releasing the ParkLock", page 109
3. Open the cover plate located on the cab floor (right-hand side).
4. Remove the protective plate.

5. ***IMPORTANT:*** *When shifting range, only use the limp home lever supplied with the tractor because the coupling mechanism in the control unit may be damaged (max. permissible torque: 10 Nm (7 lbf ft)).*

   Place the limp home lever on the range control and select the limp home range:
   - clockwise direction, low speed range (tortoise)
   - counterclockwise direction, high speed range (hare)

   NOTE: *It is important not to change range when travelling in limp home mode*

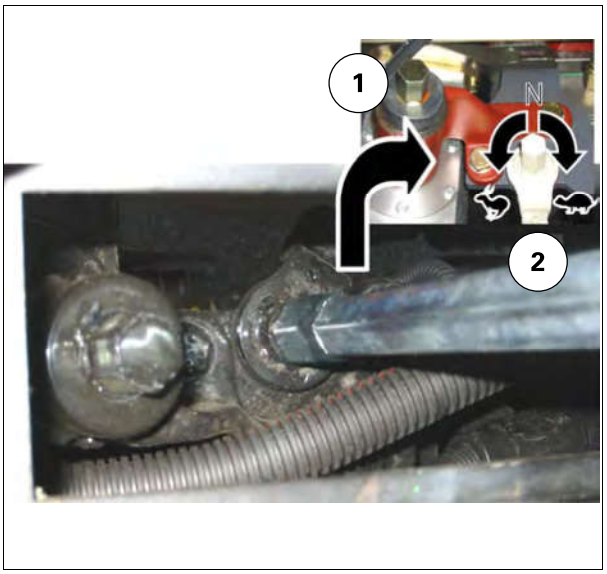


Fig. 14. I017250

6. Declutch and start the tractor while holding down the red button (limp home button).

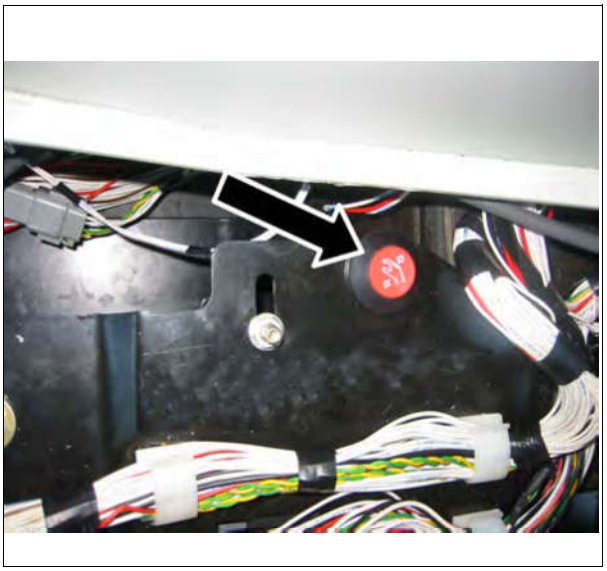


Fig. 15. I017248

7. One of the two error codes is displayed on the left-hand screen (DOT Matrix).

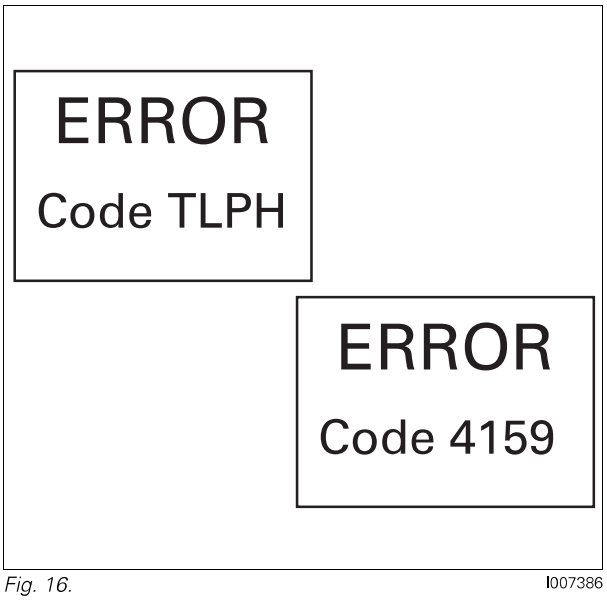


Fig. 16. I007386

8. ***IMPORTANT:*** *Keep your foot down on the clutch.*

   Release the red button.

9. Place the limp home lever on the control (1).

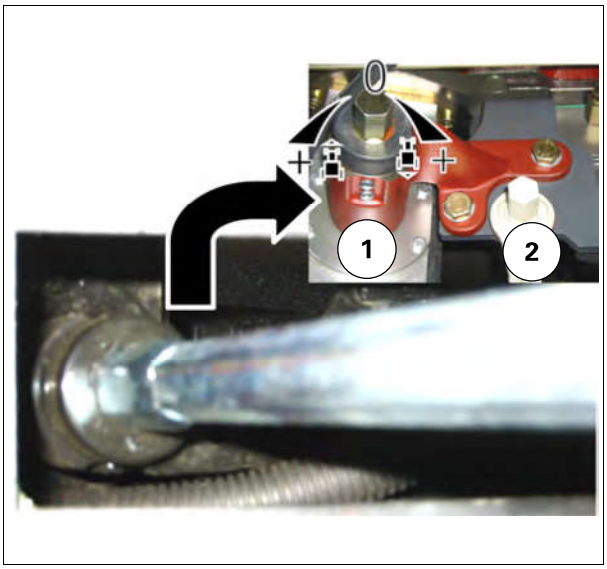


Fig. 17. I017251

10. Turn the lever in the required direction of travel:
    - counterclockwise direction, forward travel
    - clockwise, reverse travel

    NOTE: *Travel speed depends on the rotational value of the lever.*

11. Carefully release the clutch pedal. The tractor moves in the previously set direction of travel and reaches the selected ratio manually.
    To deactivate limp home mode, stop the tractor and switch off the ignition.

Releasing the ParkLock

1. ***DANGER:***
   The ParkLock parking brake will not operate once its screws have been loosened.
   Before loosening, chock the tractor to prevent the wheels from drifting.

   Release the ParkLock parking brake by loosening the right- and left-hand brake pots (1) located on the top of the rear axle until the hard point is felt (approximately 9 turns).

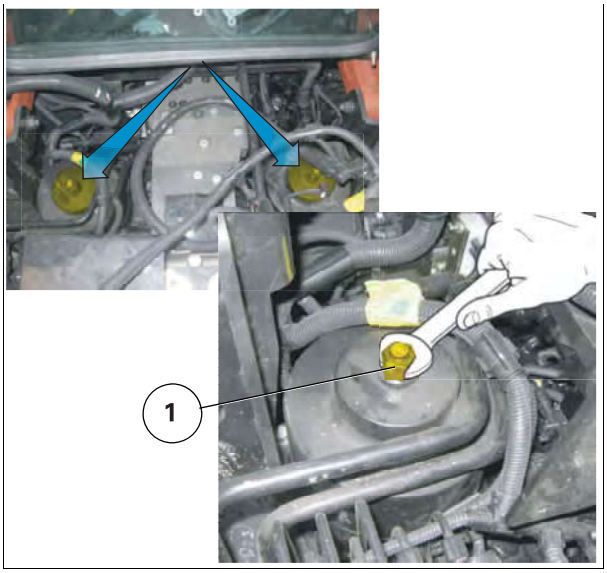
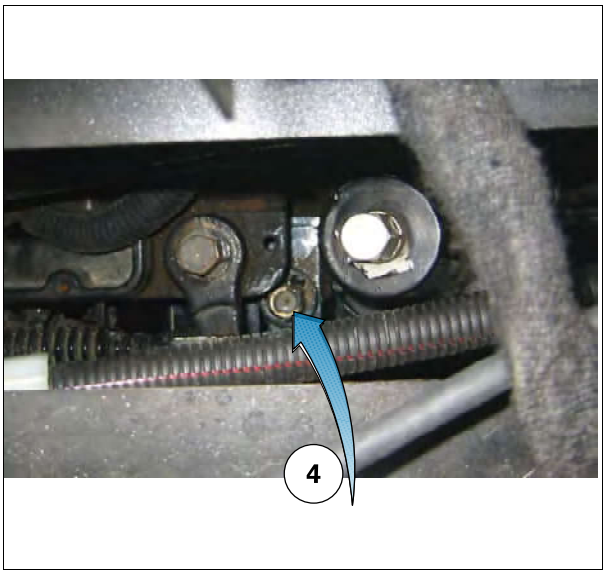


Fig. 18. I007381

2. **DANGER:**
The ParkLock parking brake will not operate once its screw has been tightened.
Before tightening, chock the tractor to prevent the wheels from drifting.

Using the limp home lever, tighten the screw (4) to maximum tightness in order to move the ParkLock cylinder upwards (5).



I017246

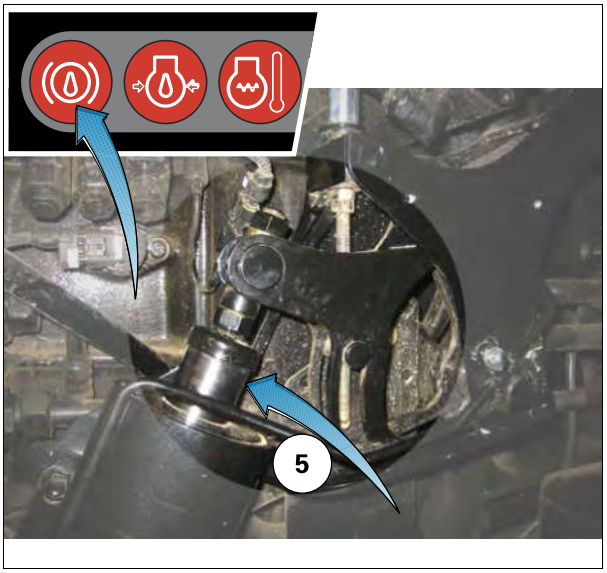


Fig. 19. I017247

3. To return the "ParkLock" to its normal operating position, fully loosen the screw, and the pin is released (6).

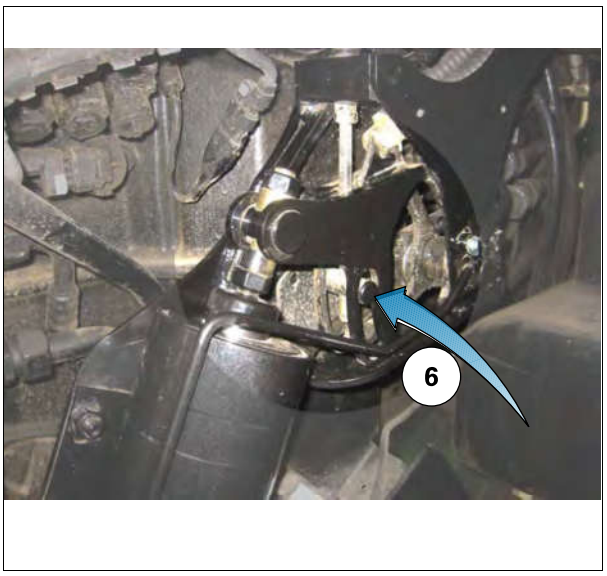


Fig. 20. I017259

3.6 Brakes

3.6.1 Brake pedals

T001388

WARNING:
When driving on the road, the two brake pedals must be locked together. Only the foot throttle should be used, and the hand throttle lever must be in the engine idle position. Check that the memorized A/B speed is not activated.

- Use the brake pedals locked together when travelling on the road.
  The brake acts on the two rear wheels, the front axle (4-wheel drive only), and on the trailer brake.
- To lock the brake pedals together, push the locking lever down.
- Use the brake pedals separately to apply the brake to just one wheel at a time.
  Raise the locking lever. Use the brake pedal corresponding to the side the brake is to be applied.

Fig. 1. I012701

3.6.2 Hydraulic trailer brake

T001686

General

WARNING:
When using the trailer brake, it is recommended that the brake pedals be locked together.

The trailer brake system is available as an option.

If a trailer equipped with a hydraulic brake system is hitched to the tractor and connected, the trailer brakes are activated as soon as the operator presses both the tractor brake pedals.

Connection:

1. Remove the plastic cover and check for contamination. Clean if necessary.
2. Connect the trailer hose to the union located at the rear of the tractor.
3. After disconnecting, refit the cover to prevent any possible clogging and damage to the contact faces.

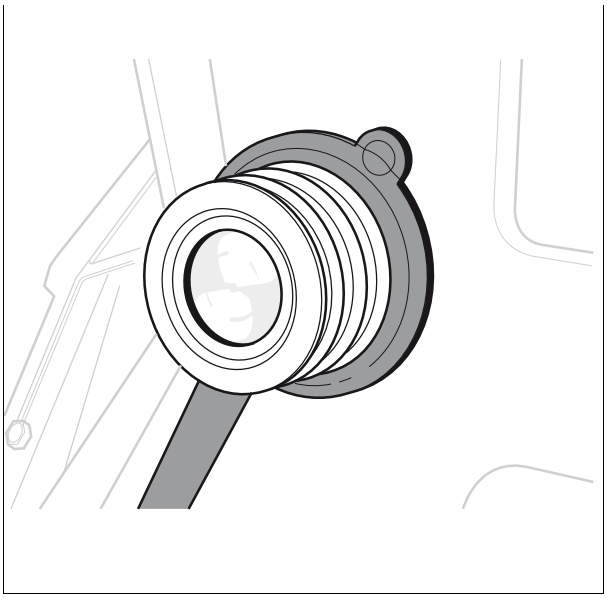


Fig. 2. I017130

3.6.3 Parking brake

T001688

Operation

WARNING:

To compensate for gravity and to prevent the tractor from moving when starting on an ascent or descent, the brake pedals must be applied before releasing the parking brake.

3

- When the parking brake is engaged, if the shuttle control is moved forwards, the tractor remains stationary.
- If the parking brake is engaged at speeds below 2 km/h (1 mile/h), the tractor stops.
- If the parking brake is engaged at speeds above 2 km/h (1 mile/h), the tractor continues moving.

3.6.4 Electromechanically controlled brake on the steering column(ParkLock)

T001689

General

A control located on the PowerShuttle lever to the left of the steering column allows the operator to engage or disengage the parking brake (ParkLock):

- (A) disengaged position
- (B) engaged position

WARNING:

To compensate for gravity and to prevent the tractor from moving when starting on an ascent or descent, the brake pedals must be applied before releasing the ParkLock.

WARNING:

Position the ParkLock control in the engaged position (closed padlock symbol) and switch off the engine before leaving the operator's seat.

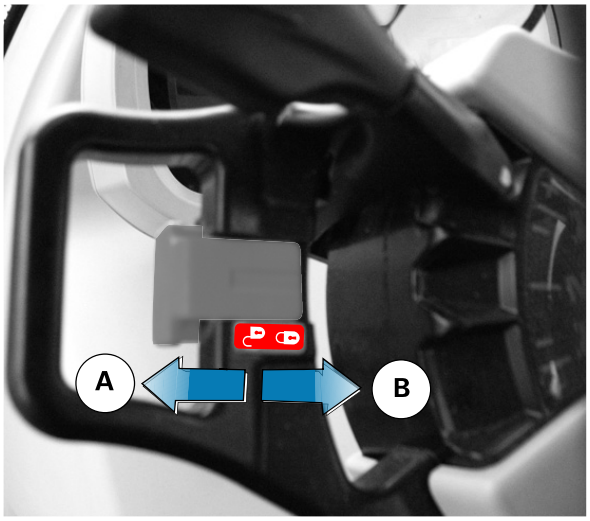


Fig. 3. I018788

Disengaging the brake:

IMPORTANT: *For the ParkLock to disengage after engine start-up, the electronic control must record a switch of the control (A) from the closed padlock position to the open padlock position fig. 3.*
If this condition is ignored, the ParkLock will remain engaged even if the control is in the padlock open position.

1. The ParkLock control should be **pulled** outwards according to **A** (open padlock symbol). The (P) indicator light goes out on the instrument panel.
   The P symbol remains on the right-hand screen of the instrument panel.
2. The ParkLock remains engaged and the tractor remains immobilized
3. To completely disengage the ParkLock, activate the brake pedals or shift the PowerShuttle lever to the forward or reverse position

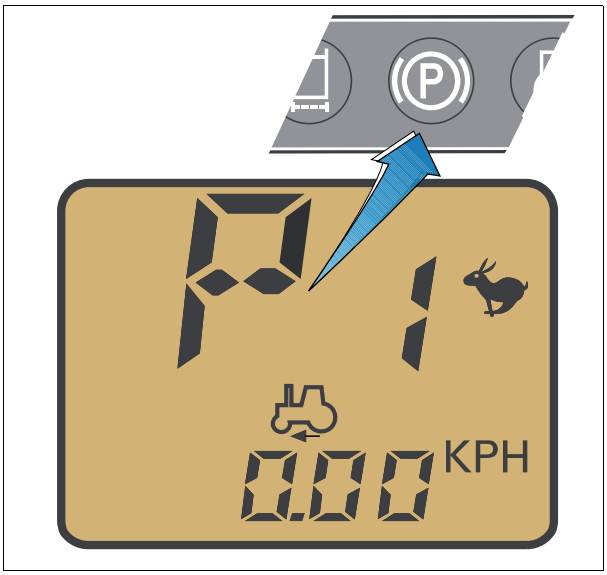


Fig. 4. I022015

Engaging the brake:

NOTE: *The ParkLock engages automatically when the engine is stopped.*

1. The PowerShuttle lever must be in neutral position. The letter **N** appears on the digital display indicating that the shuttle lever is in neutral position.
2. The forward speed must be less than 1 km/h (0.6 mile/h)

Fig. 5. I016455

3

3. The ParkLock control must be **pushed** towards the steering column according to **B** (closed padlock symbol). The brake is then engaged.
   NOTE: *The indicator light ((P)) illuminates on the instrument panel and the digital display indicates the symbol ((P)), representing the parking position.*

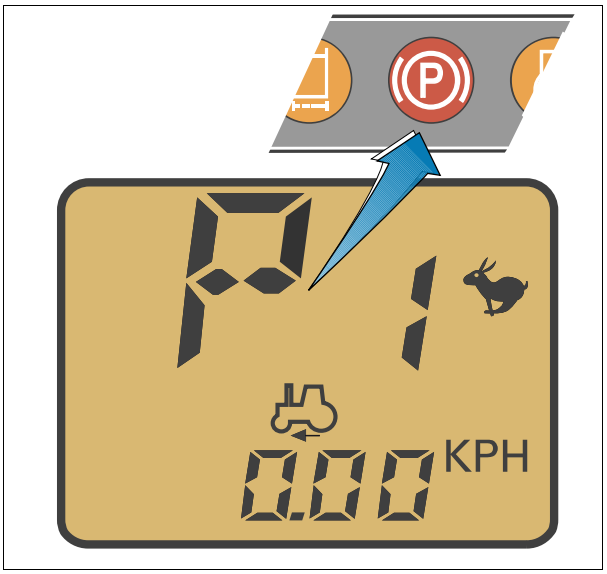


Fig. 6. I016458

3.7 Steering

3.7.1 Steering

T000977

CAUTION:

The steering is hydrostatic. When the engine stops, the booster pump no longer feeds the system. Hydrostatic steering therefore shifts automatically to manual operation mode, which requires greater effort when turning the steering wheel.
However, no hydraulic system can operate efficiently unless:

- ***it is correctly maintained and the recommended fluids are used***
- ***the tightness of all unions, and the oil level, are regularly checked***

3.8 Front axle

3.8.1 Four-wheel drive front axle

T001298

When the front axle is engaged, the front wheels are driven. This function is strongly advised for field work to keep wheel slip to a minimum.

3

The front axle may be used in accordance with the following operating modes:

1. Manual mode
2. Automatic mode
3. US-specific mode

IMPORTANT: *So as not to damage the tractor, it is essential to disengage the front axle prior to use on the open road.*

NOTE: *At tractor start-up, the front axle is in automatic mode.*

Special conditions

- The front axle is engaged whenever the tractor is stationary and the front axle indicator light is "OFF."
- If both brake pedals are depressed, the front axle engages to provide 4-wheel braking, regardless of forward speed.
- The front axle will engage whenever the differential lock is engaged.
- The front axle engages when the emergency hand brake is applied.
- To move from automatic to manual mode, press the switch for 2 seconds.

Operation

1. Manual mode:
   To activate manual mode, press the switch (7) once and then press it again for 3 seconds.
   In manual mode, the 4-wheel drive front axle is permanently engaged, irrespective of the forward speed.
2. Automatic mode:
   To engage the front axle, press the switch (7) briefly. The corresponding indicator (4) lights up on the instrument panel and the front axle in automatic mode symbol (A) appears on the digital display.
   Once a speed of 18 km/h (11 mile/h) is reached, the four-wheel drive front axle is disengaged automatically.
   As soon as the speed drops below 17 km/h (11 mile/h), it is automatically re-engaged.
3. US-specific mode:
   Pressing the switch for 5 seconds moves the front axle into US mode. The front axle is MOMENTARILY disengaged as soon as just one of the brake pedals is depressed. The differential is also disengaged.
   NOTE: *If the front axle is not engaged and the operator presses the dual brake pedals, or if the ParkLock is engaged, the front axle automatically engages and the instrument panel light comes on.*
   When the brake pedals are released, the front axle is disengaged.

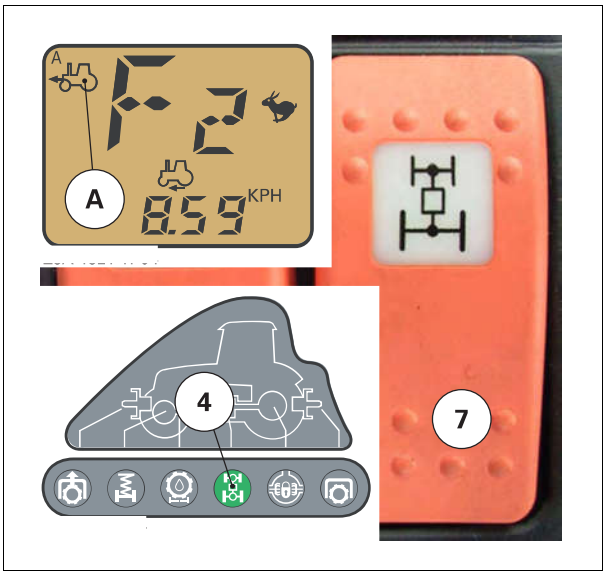


Fig. 1. I005388

3.8.2 Suspended front axle

T001495

The suspended front axle (optional) is designed to improve the operator's comfort by enabling better shock absorption during road use and also to increase the vehicle's stability at high speeds by improving contact with the road surface.

The axle suspension can be activated (ON in operation) and deactivated (OFF not in operation) using the switch (1) located on the right-hand console inside the cab *fig. 2*.

Operation

- On starting the engine, the axle suspension remains in the position (activated or deactivated) that it was in when the engine was stopped.
- The suspension is activated by pressing the switch (1); the indicator light (2) lights up on the instrument panel and the front axle is raised a few seconds later.
- To deactivate the suspension, press the switch (1); the indicator light (2) goes out.
- The front axle suspension is activated automatically when the speed exceeds 30 km/h (19 mile/h).

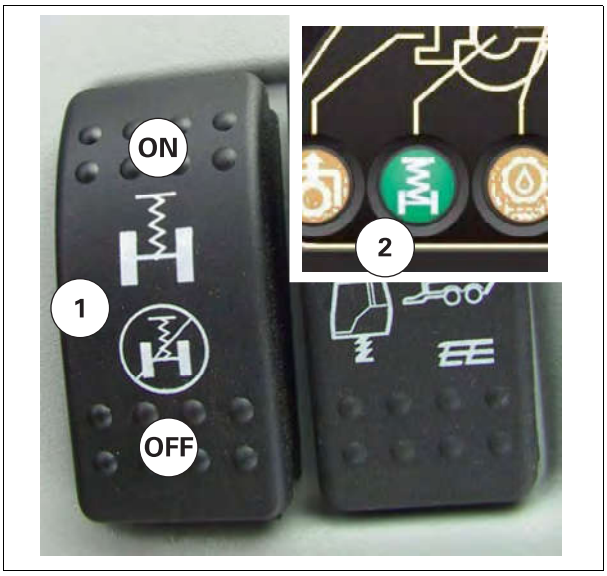


Fig. 2.

I005389

3.9 Differential lock

3.9.1 Differential lock

T001292

DANGER:
Not to be used on the road or when turning.
Maximum speed 18 km/h (11 mile/h)

IMPORTANT: *DO NOT engage the differential lock if a wheel is already spinning.*

If wheel slip is anticipated, press the differential lock switch.
The differential lock indicator light ((1)) and the front axle indicator light ((2)) come on.
The rear and front differentials are locked.
The front axle is engaged if it was not already engaged beforehand.

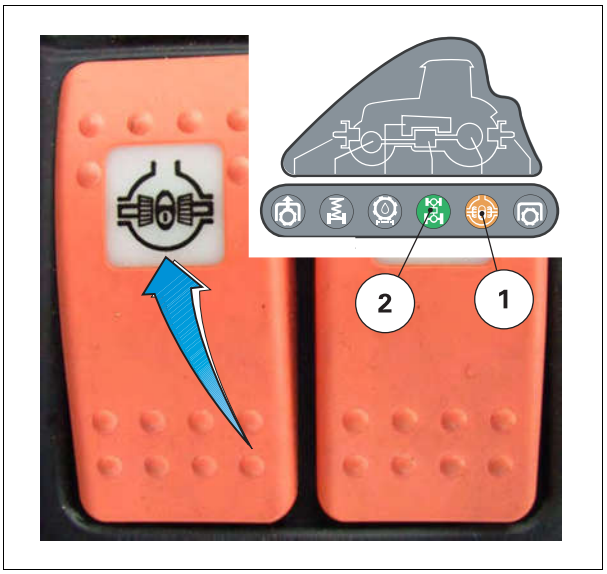


Fig. 1. I017778

Automatic functions of the differential lock:

- Disengaging the differential lock does not disengage the front axle.
- When the tractor speed exceeds 18 km/h (11 mile/h), the differential lock disengages automatically.
  It is not automatically re-engaged when the speed drops below 18 km/h (11 mile/h).
- When the linkage is placed in the raised position or in transport position, the differential lock is automatically disengaged.
  It is then re-engaged when the linkage is in working position.
- Pressing one of the brake pedals (whether coupled or not) permanently disengages the differential lock unless it is temporarily disengaged by the linkage.

3.10 Power take-off

3.10.1 Power take-off

T001577

WARNING:
Always disengage the PTO before attaching, detaching or adjusting an implement.
Take all necessary safety precautions for any operation involving implements that are driven by the PTO.

DANGER:
Never go beyond the universal joint line.
Do not use the tractor or trailer drawbars as a step.
Never use the universal joint as a step. Never wear loose-fitting clothes.
Remain at a safe distance from the universal joint.

3.10.2 Zuidberg front power take-off

T001578

This PTO is driven by the engine.

WARNING:
Always disengage the PTO before attaching, detaching or adjusting an implement.
Take all necessary safety precautions for any operation involving implements that are driven by the PTO.

DANGER:
Never go beyond the universal joint shaft.
Never use the universal joint shaft as a step.
Never wear loose-fitting clothes.
Remain at a safe distance from the universal joint shaft.

Front power take-off specifications	
Number of selections possible for front PTO	1000 tr/min
Maximum permissible power	99 kW
Maximum permissible input torque	497 Nm (367 lbf ft)
Maximum permissible output torque	955 Nm (704 lbf ft)
Rotational direction	Clockwise (viewed from the front of the tractor)
Engine speed for 1000 rpm PTO	2040 rpm
Ratio	2.04
Clutch type	Hydraulics
Splined shaft type	21 splines, diameter 35 mm (1.4 in) (1" 3/8)

3

NOTE: *When stationary, manual rotation of the PTO through 15° facilitates implement hitching.*

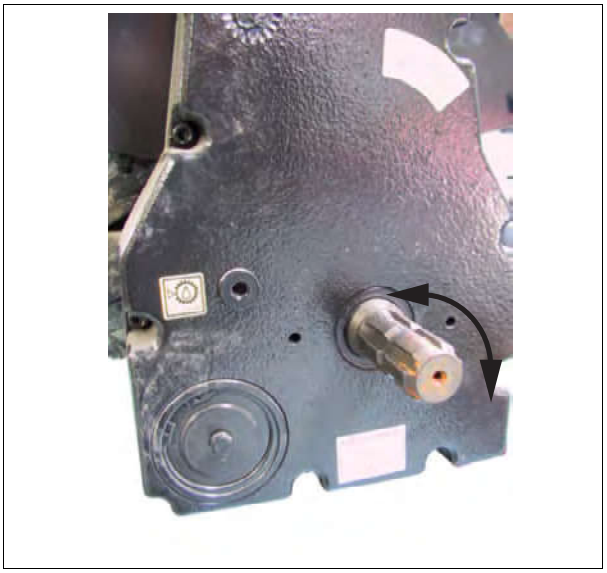


Fig. 1. I005828

Power take-off control

A controller located at the front under the grille enables the clutch cycling setting to be increased or decreased (2 to 6 seconds) by adjusting screw 1 (maximum ¾ turn).

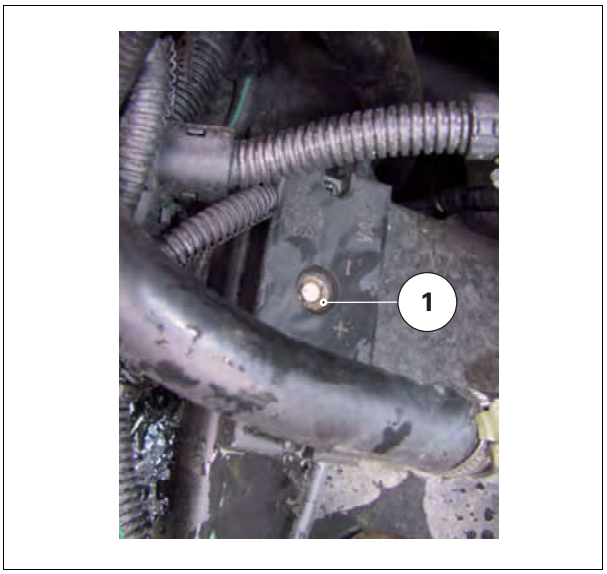


Fig. 2. I005829

Engaging the power take-off

Slide the red slider in the direction indicated by the arrow, while pressing the switch (D) in order to unlock it. The indicator light (2) lights up on the instrument panel.

IMPORTANT: *When the PTO is stopped, the PTO brake is engaged.*

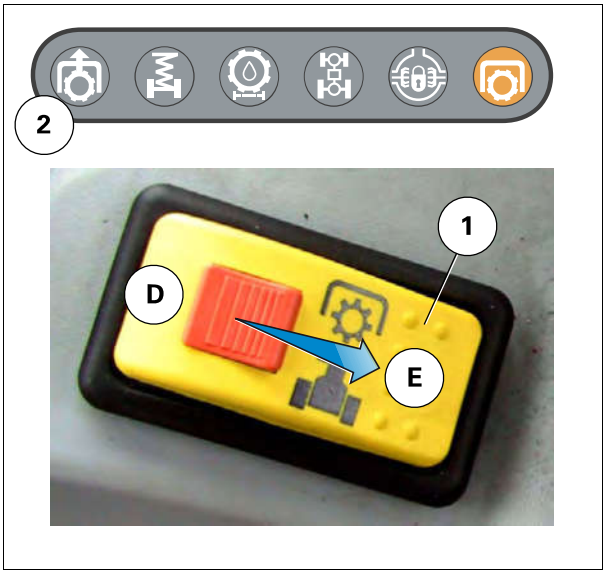


Fig. 3. I016435

Disengaging the PTO

Press on the switch (E) to stop the PTO.
In this position, the red slider of the switch prevents unintentional engagement.

3.10.3 Rear power take-off (PTO)

T002439

Operation

The PTO can be engaged and disengaged independently of the transmission. 540 rpm, 540E rpm, or 1000 rpm speeds can be obtained by selecting the appropriate speed with the switches located on the right-hand console, which illuminates the corresponding indicator light on the instrument panel.

IMPORTANT: *Engage the PTO at low engine speed to protect the clutch and transmission.*

WARNING:
Always disengage the PTO before attaching, detaching or adjusting an implement.
Take all necessary safety precautions for any operation involving implements that are driven by the PTO.

DANGER:
Never go beyond the universal joint shaft.
Do not use the tractor or trailer drawbars as a step.
Never use the universal joint shaft as a step.
Never wear loose-fitting clothes.
Remain at a safe distance from the universal joint shaft.

Selecting the power take-off speed

1. To be able to engage the PTO, it is first necessary to select the 540, 540E, or 1000 rpm speed using the corresponding switches (3). The indicator light (6) flashes on the instrument panel and the display appears on the right-hand digital display. The PTO is disengaged when the switch **N** is pressed.

IMPORTANT: To avoid damaging implements driven by the PTO, the engine speeds in the table below must be complied with.		
Selected PTO speed	**Display**	**Maximum engine speed**
540 rpm	540	2090 rpm
540 E rpm	ECO	1600 rpm
1000 rpm	1000 rpm	2030 rpm

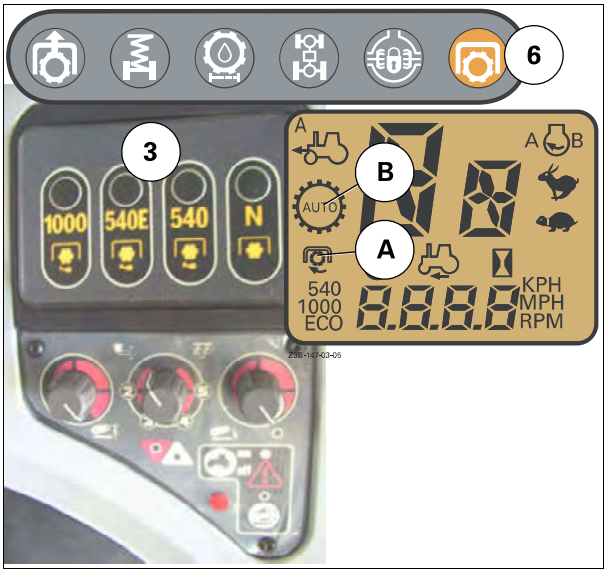


Fig. 4. I016440

Engaging PTO in manual mode:

NOTE: *If no speed has been preselected when the PTO is activated, it is deactivated after a short pause and a warning message appears on the screen.*

3-position switch (3):
(A) ON
(B) OFF
(C) PTO brake

1. Select ON position on the switch (3) to engage the PTO.
2. When the indicator light (6) flashes on the instrument panel, press the control button (ON/OFF (2)) twice consecutively.
3. The PTO engaged indicator light (6) stops flashing and remains lit permanently. An engaged symbol appears simultaneously on the digital display (D).
4. To stop the PTO, press the control button (ON/OFF (2)) again.
   The clutch engaging process depends on the length of time the push button is pressed down.
   – Less than 5 seconds
     Progressive start-up, the PTO clutch automatically adapts to the conditions required to start the implement.
   – More than 5 seconds
     The speed controls and default values are deleted.

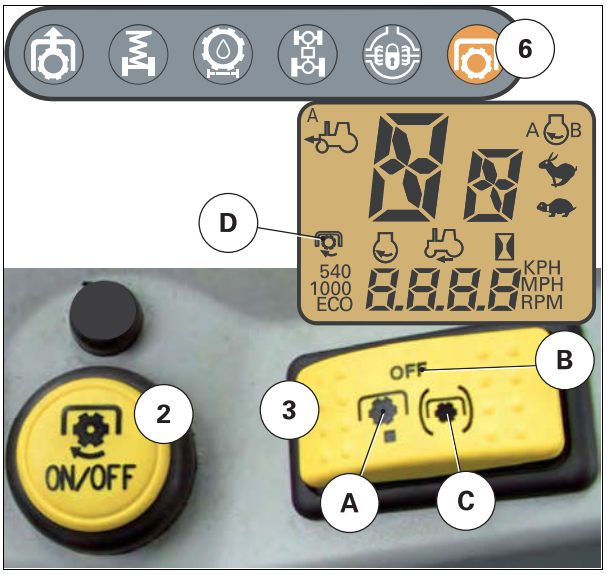


Fig. 5. I012826

3.10.4 Power take-off external control

T001580

PTO stop (F):
– Located on the left-hand fender, the external PTO stop button stops the rear PTO shaft from rotating.
– The indicator light flashes on the instrument panel.
– To re-engage the PTO, use the cab controls.

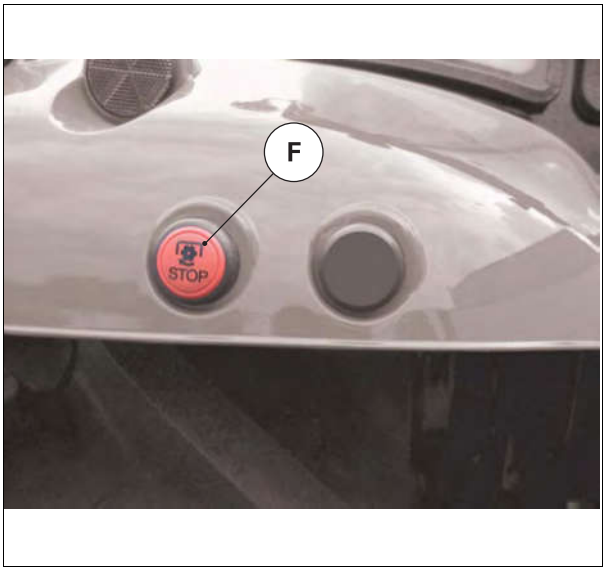


Fig. 6. I005398

3.10.5 Interchangeable 540 et1000 rpm PTO (flanged shaft)

T001300

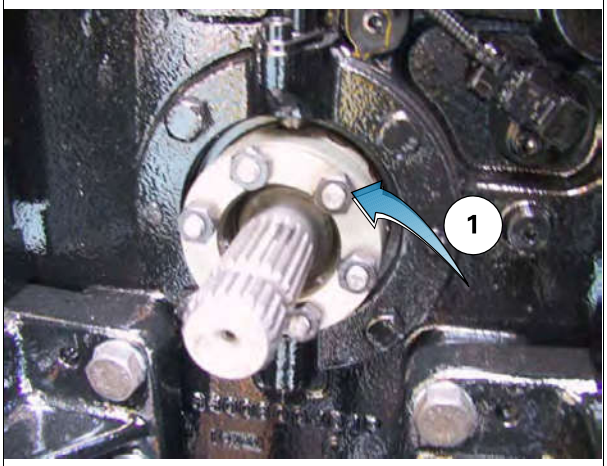
End-fittings that can be fitted:

– 35 mm (1.4 in) (1" 3/8) shaft with 21 splines
– 35 mm (1.4 in) (1" 3/8) shaft with 6 splines
– 45 mm (1.8 in) (1" 3/4) shaft with 20 splines

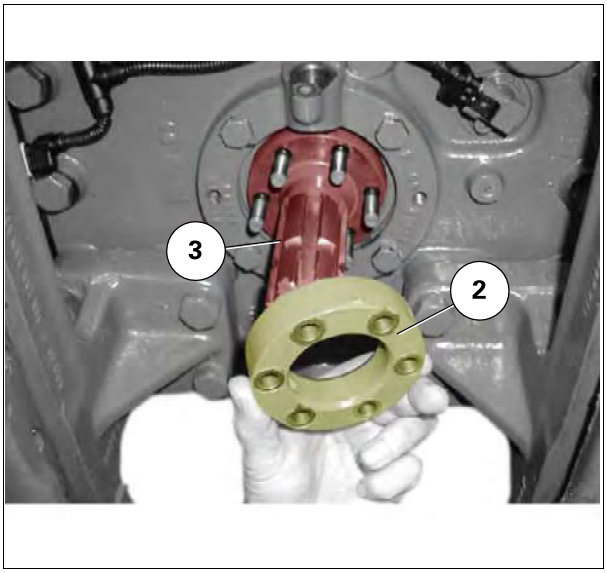
Changing the shaft

IMPORTANT: *When changing the spacer (2), the hexagon nuts (1) must be retightened to a torque of 69 Nm (51 lbf ft).*

1. Stop the shaft end fitting ((3)) from rotating using a M16X45 screw ((4)) fitted in the lower section.
2. Unscrew the nuts ((1)), remove the spacer ((2)) and remove the shaft end fitting ((3))
3. Fit the new shaft end fitting in place and refit the spacer.
4. Refit the nuts in place.
5. Retighten the nuts to a torque of 69 Nm (51 lbf ft).
6. Remove the screw ((4)) to allow the shaft to rotate.



I004724



I004725

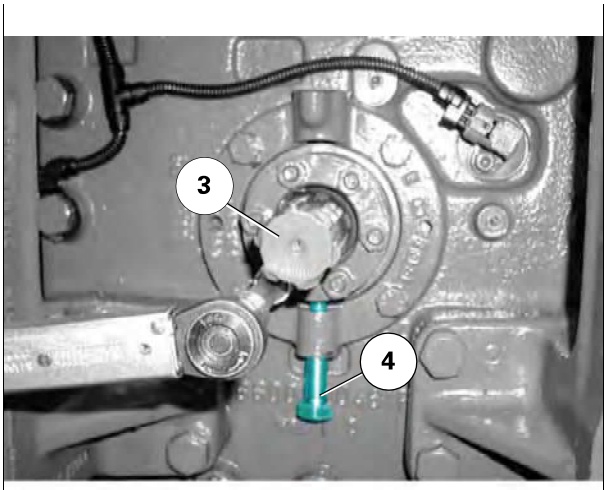


Fig. 7.

I004726

3.10.6 Power take-off electronic controls

T001402

NOTE: *The PTO electronic controls are designed to protect the tractor and the implement.*

- If the main PTO selector switch is on when starting the engine, the PTO is disengaged and the PTO indicator light on the instrument panel flashes. No error will be transmitted or displayed. To start the PTO, the PTO selector switch must be moved to the OFF position and then to the ON position.
- Protection against engine stalling: If PTO engagement causes the engine speed to drop more than 50% below the initial speed, the electronic control unit will turn off the solenoid valve and transmit an error message via the CAN bus and cause the PTO indicator light on the instrument panel to flash.
- When the economy PTO is engaged and if the engine speed exceeds 1800 rpm, the PTO is disengaged and its indicator light on the instrument panel will flash.

3.11 Linkage

3.11.1 Rear linkage: Electronic controls

T001585

Fig. 1. I017235

(A) Height/depth control knob
(B) Function selector: position/intermix/draft
(C) Maximum linkage height adjustment control
(D) Manual or automatic adjustment of lowering speed
(E) Lift/Lower selector switch with "neutral" position.
(F) Active transport control system button
(G) Linkage lowering indicator light
(H) Linkage lifting indicator light
(I) Console locking and operating failure self-diagnostic indicator light
(J) Active transport control system indicator light
(K) Lowering speed automatic control indicator light
(L) Quick soil engagement
(M) Active wheel slip control

NOTE: *If the tractor is fitted with Datatronic 3, the linkage lock is represented by an icon (N) fig. 2.*

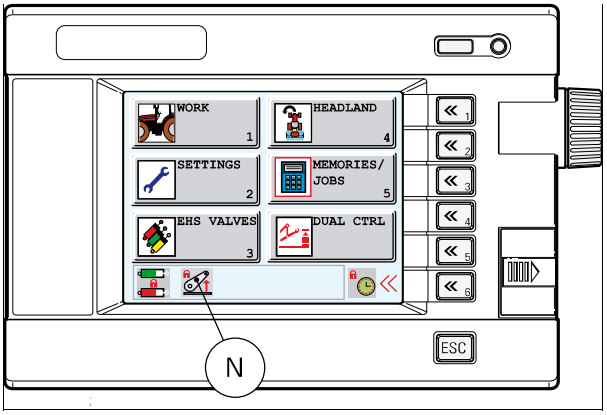


Fig. 2. I005758

3.11.2 Attaching an implement from the operator's seat

T001586

1. Start the engine.
2. Indicator lights (I), (J) and (K) light up.
3. (K) and (J) light up for approximately 0.5 seconds.
4. (I) stays on until the console is activated.
5. Adjust the control knobs.
6. Move function selector knob (B) clockwise to the lowest control position.
7. Move Lift/Lower selector switch (E) to the Lift position.
8. Adjust the position of the arms using control knob (A).
9. Lifting indicator light (H) comes on.

3.11.3 Attaching an implement using external controls

T001587

To use the external controls, Lift/Lower selector switch (E) *fig. 4*must be in Neutral or Lower position.

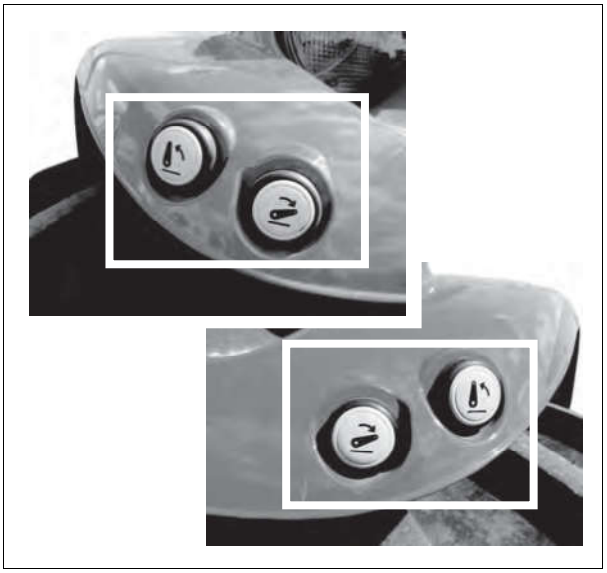


Fig. 3. I005410

DANGER:

Always place the transmission lever and reverse shuttle control lever in NEUTRAL position before leaving the operator's seat.
Activate the "ParkLock" brake control.

When selector switch (E) is in the Neutral or Lower position, simply press the external control buttons to raise or lower the arms.

NOTE: *The arms stop moving as soon as the button is released.*
When the external control is used, the lowering speed is 70% of the maximum speed (speed control (D) does not operate).

The linkage controls in the cab are automatically switched off when the external buttons are being used.

To switch the cab console controls back on, press selector switch (E).

Fig. 4. I016445

3.11.4 Adjusting the lowering speed

T001588

The potentiometer (D) is used to adjust the rear linkage lowering speed.

(1) Lowering lock position
(2) Lowering speed slow
(3) Lowering speed fast
(4) Automatic mode

Turn the button (D) clockwise to lower the linkage arms in accordance with the required lowering speed. Lowering indicator light (G) comes on.

In automatic mode, the lowering speed is governed by two parameters: the implement load on the linkage and the tractor forward speed.
Indicator light (K) comes on when this mode is selected.

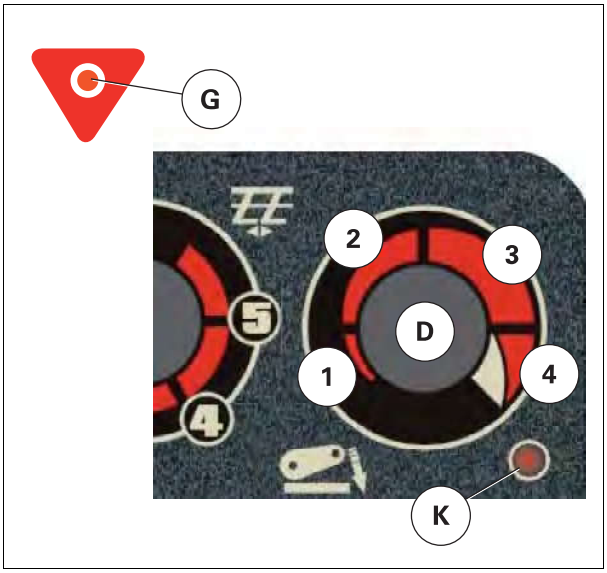


Fig. 5. I005408

3.11.5 Adjusting the raised stop of the rear linkage

T001589

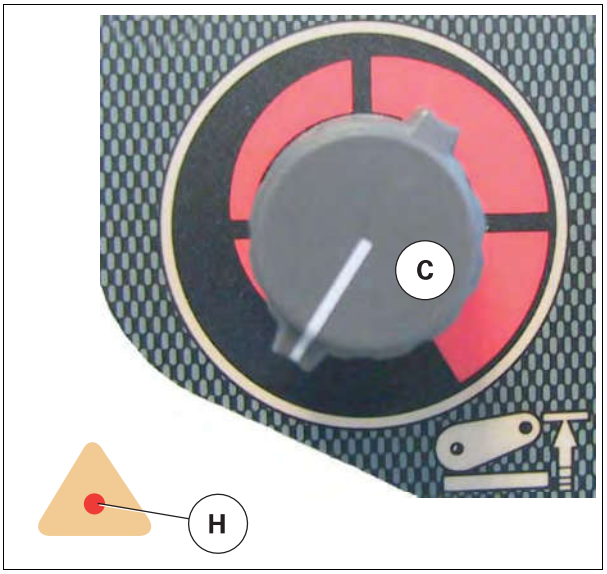


Fig. 6. I019032

On the linkage console, the potentiometer (C) is used to adjust the linkage raised position.
Lifting indicator light (H) comes on.

3.11.6 Wheel slip control

T001615

When the Datatronic 3 option is fitted, the wheel slip control function is available on the tractor.
This function is used to control the depth of implements in the soil according to the tractor wheel slip rate, when the electronic system detects a difference between the tractor's theoretical and actual forward speeds.

NOTE: *This function can be activated by pressing the switch (1); the wheel slip control icon turns green (2).*

Fig. 7. I005390

(2) Wheel slip control inactive (green icon when the function is active)
(3) Maximum permissible wheel slip (value adjustable using the DOT Matrix)
(4) Actual tractor wheel slip

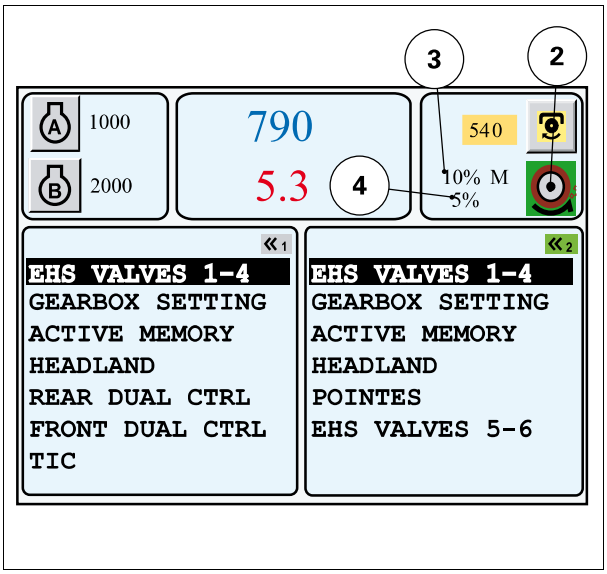


Fig. 8. I005911

3.11.7 Rear linkage: Setting the depth limit

T003339

Positions 1 (min.) to 7 (max.) on knob (A) *fig. 1* determine the implement working depth. Between 8 and 9, the linkage is in floating position.
To vary the working depth, the linkage lowering control (E) *fig. 1* must be placed in the Lower position.

NOTE: *If the tractor is fitted with Datatronic 3 and Dual Control, the depth variation is automatically conveyed to the rear or front implement.*
To use Dual Control, refer to the specific documentation in the relevant chapter.

3.11.8 Setting the rear linkage in transport position

T001590

Adjust the maximum linkage height according to the transport implement using the height adjustment control knob (C). Start from the min. position. Move knob (D) to position (1) (padlock).

3.11.9 Rear linkage: Active transport control system

T000991

When button (F) is pressed, the system operates automatically ; indicator light (J) comes on.
To deactivate this function, press button (F).

NOTE: *The transport control system is active at each start-up.*

3.11.10 Rear linkage: Quick soil engagement

T001591

This function allows an implement to penetrate the soil more quickly by temporarily cancelling the depth control.

1. Move the selector switch (E) to the Lower position, press and hold the button (L) to activate quick soil engagement *fig. 1*.
2. Release the button as soon as the plow is engaged into the soil.

3.11.11 Using the rear linkage in working position

T001592

1. Adjust the maximum lifting position using knob (C).
2. Using knob (D), adjust the linkage lowering speed.
3. Choose the appropriate control method (draft, position or intermix control), depending on the implement, the ground conditions, and the type of work, using selector knob (B).
4. Adjust the working depth using knob (A).
5. Lift and Lower indicator lights (H) and (G) indicate which operation is being carried out.

3.11.12 Rear linkage operation at headlands

T001593

Move Lift/Lower selector switch (E) to the Lift position. The drawbar will rise to the preselected maximum height (C).

To resume work, move Lift/Lower selector switch (E) to "Lower." The settings previously made will be repeated.

3

NOTE: *A system, similar to a circuit breaker, puts the linkage system out of operation when the ignition is switched off, when the engine is stopped (ignition switched off), or when external controls are used.*

The purpose of this device is to avoid any inadvertent movement of the arms if someone alters the settings on the console while the tractor is stationary.
To reactivate the linkage system, move switch (E) to the intermediate position, then to the Lift position. The linkage is then brought back into operation and the padlock (N) on the Datatronic 3 window disappears, if this is installed.

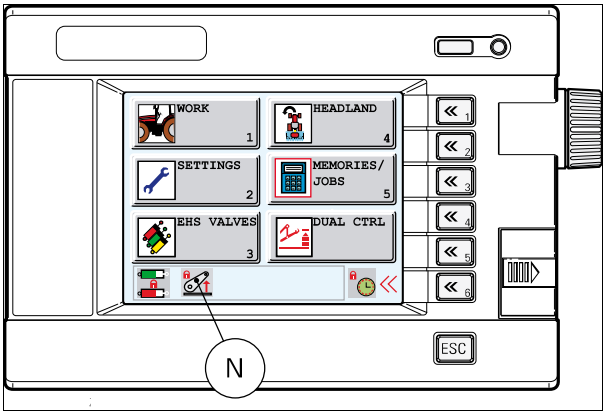


Fig. 9. I005758

Before reactivating the electronic linkage controller (ELC), ensure that selector knob (C) and depth control knob (A) will not cause any dangerous movement of the lower links.

3.11.13 Front linkage: General

T001565

The front linkage should be used exclusively for agricultural purposes, i.e., for hitching mounted and pushed agricultural machinery.
The front linkage can carry or push an implement.
The design of the linkage and tractor allows heavy implements to be used but it is advisable to avoid submitting the linkage to excessive loads.

Fig. 10. I005819

3.11.14 Front linkage: Operation

T001566

Front linkage function

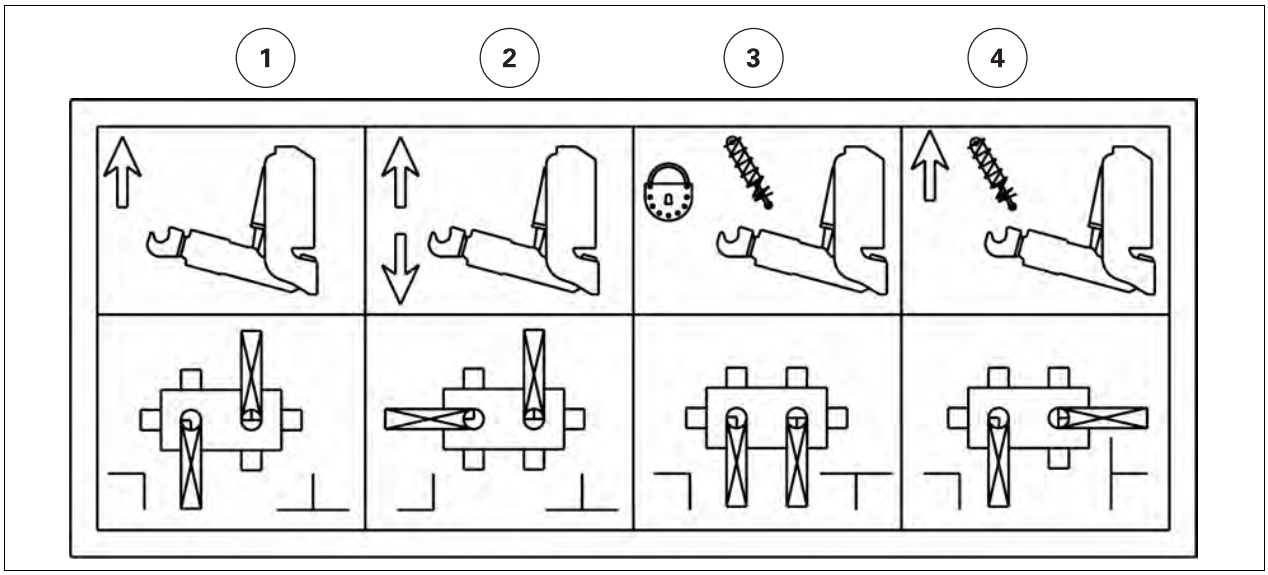


Fig. 11. I009390

(1) Single-acting: The lift rams receive hydraulic pressure for lifting only; lowering is ensured by the weight of the hitched implement. ***NOTE:*** *The linkage can take a long time to lower if no implement is attached.*

(2) Double-acting: The lift rams receive hydraulic pressure for lifting and lowering.

(3) Transport control system: A hydraulic transport control system locks the linkage in position for road transportation.

(4) Single-acting transport control system: The linkage operates as in the single-acting mode to absorb linkage movement.

IMPORTANT: *Position the hydraulic system valves located at the rear of the tractor as shown on the sign.*

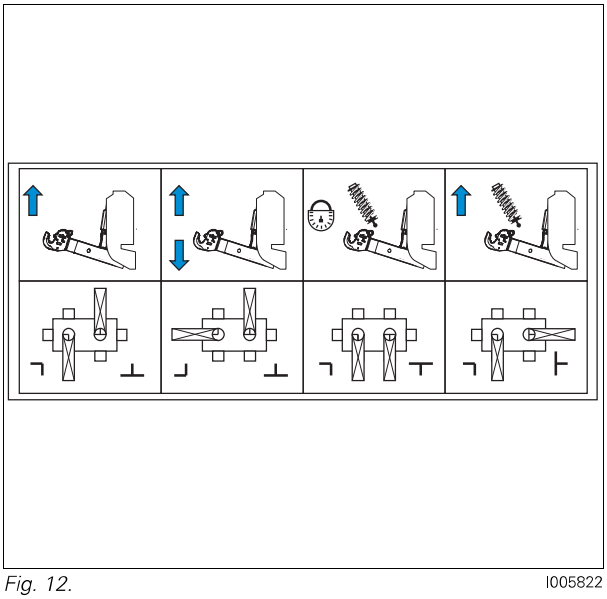


Fig. 12. I005822

The front linkage is controlled by the joystick (1) *fig. 13* or the spool valve controls located in the cab (depending on options fitted).

Spool valve to be used according to color			
	Open center	LS mech.	LS joystick
Model fitted with mechanical spool valves	Red	Green	Green
Model fitted with 2 "electric" + AV/AR Dual Control spool valves		Green	Green
Model fitted with 3 or 4 "electric" + AV/AR Dual Control spool valves			Black

The maximum flow rate is adjusted in the spool valve block at the rear of the tractor, either from the cab (hydraulic controls) or using the electrohydraulic controls of the SMS (Spool Valve Management System).

Fig. 13. I005823

Depth control

For toothed implements, the depth is controlled by the implement soil engagement wheels; in this case, set the spool valve to floating position (no load transfer takes place).
Controlling the work depth with the hitch after setting the position:
An average depth level should be set using the height/depth control (load transfer is recommended to improve tractor tire grip).
It is then possible to use the draft control mode of the Front Dual Control to adjust the work depth depending on the traction load applied to the rear linkage, especially when using front and rear plows.
For compaction implements, the tractor load must be transferred to the implement. This is obtained by pushing the lever or SMS control forwards, as long as the linkage is double acting.
Mounted implements (ballasting, hoppers, etc.) are raised to avoid decreasing ground clearance.

External controls

DANGER:
Operate the external controls with care, keeping a safe distance from the linkage arms.

The external lifting/lowering controls (3) *fig. 14* can only operate with the engine running.

The following points must be observed before use:

- Before using the external controls, activate the joystick (indicator light (2) *fig. 13* off) and move the linkage switch to neutral or lower position.
- After each use of the external controls the joystick is locked (indicator light steady on).
- To use the cab controls again, the joystick must be activated (indicator light off).

NOTE: *The external controls do not operate if the joystick is not activated after starting the tractor. However, if you move them, the linkage switches to safety mode (indicator light flashes) and the engine must be restarted.*

The oil outlets are controlled by the spool valve control located in the cab and have the same characteristics as those used at the rear.

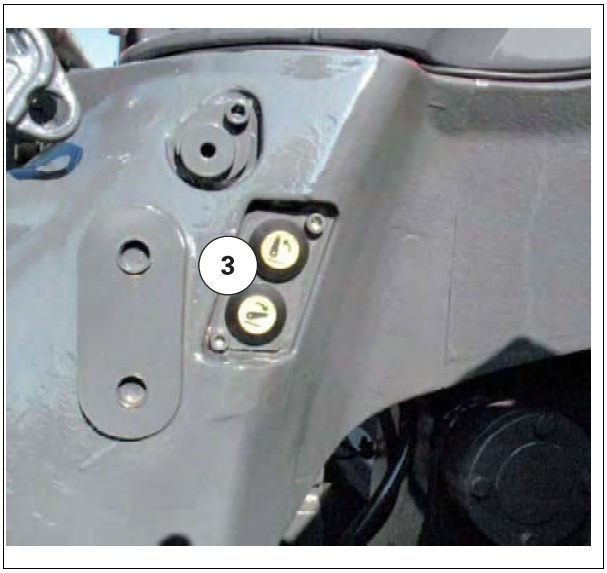


Fig. 14. I005824

3.11.15 Front linkage: Permissible loads on the front axle

T001567

The tractor's permitted load is restricted by the following two factors:
- the axle beam
- the tires

Using a long, heavy front implement can lead to overloading the front axle.
Do not exceed permissible front axle loads. To measure the maximum load supported by the front axle, place the front axle on a weighbridge, lift the front implement and lower the rear implement.

Maximum permitted load on front axle (suspended or not):

Maximum permitted load on front axle (suspended or not) at 610 mm (24.0 in) from ball joints: 3500 kg (7716 lb)

Permissible load on tires

The load supported by the tires depends on their inflation pressure, maximum travel speed and the torque to be transmitted. In general, the greater the load the tire must carry, the greater its volume should be.

IMPORTANT: *This is the most common factor limiting front axle capacity. Tire manufacturers offer charts detailing permissible loads for a tire type depending on operating conditions. Failure to observe these limits can lead to tire damage, an unstable machine and poorer performance.*

Examples for standard agricultural tires:

Tire dimension	Load on axle beam	Pressure	Speed
14.9R24	1,9 t (2 US ton)	0,6 bar (9 psi)	30 km/h (19 mile/h)
14.9R24	3 t (3 US ton)	1,4 bar (20 psi)	40 km/h (25 mile/h)
480/65R28	2,1 t (2 US ton)	0,4 bar (6 psi)	30 km/h (19 mile/h)
480/65R28	3,7 t (4 US ton)	1 bar (15 psi)	30 km/h (19 mile/h)
480/65R28	4,5 t (5 US ton)	1,6 bar (23 psi)	40 km/h (25 mile/h)
600/65R28	3 t (3 US ton)	0,4 bar (6 psi)	30 km/h (19 mile/h)

3.11.16 Front linkage: Hitching an implement

T001568

Adjusting the position of the arms

Three positions can be used depending on requirements: Fixed, floating or transport position.

1. Fixed position
   Position the arms horizontally and insert the pin in position (A).
2. Transport position
   No implement attached: Position the arms vertically to reduce bulkiness and insert the pin in position (C).
3. Floating position
   Position the arms horizontally and insert the pin in position (B).
   This position can be used to compensate for sloping ground, thus enabling the implement to follow the natural lie of the land.
   Example: Implement with one soil engagement wheel on each side or a roller.

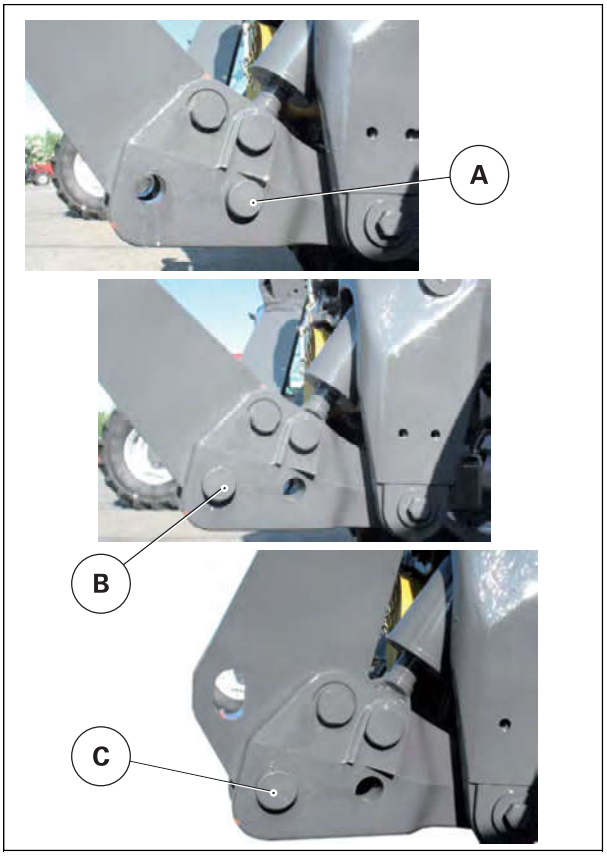


Fig. 15. I005825

Hitching an implement: Procedure

The linkage is fitted with automatic lower jaws, enabling an implement to be hitched safely from the tractor cab.
Apply the following procedure when hitching an implement:

1. Move the linkage arms to working position (fixed or floating) and fit the hitch ball joints to the implement using suitable stop pins.
2. Drive the tractor forwards towards the implement and lower the lower arms.
3. Drive the tractor forwards to position the jaws under the balls, and raise the lower arms carefully until the jaws lock.
4. Apply the hand brake and switch off the engine before climbing out of the tractor.
5. Fit the top link, adjusting its length to set the implement level, and couple the hydraulic fittings and universal joint driveshaft if fitted.

Unhitching an implement: Procedure

1. Disconnect the hydraulic connections and the drive universal joint if fitted.
2. Remove the top link.
3. Lower the lower arms carefully until the jaws unlock.
   NOTE: *The external controls can also be used to adjust the linkage.*
4. Reverse the tractor to release the jaws from the ball joints.

Storing the implements

Store implements on flat ground to keep them stable. This will facilitate hitching and unhitching.

Storing the top link

Store the top link on its support when not in use.

3.11.17 Front linkage: Driving on the road

T001569

Controlling the active transport control system

This makes driving with raised implements more comfortable. It cannot be used for field work. Implement height cannot be adjusted when the transport control system is operating.
To switch on the transport control system, lift the implement, leaving 40 mm (1.6 in) to 50 mm (2.0 in) of cylinder travel to allow the transport control system to operate (release).

WARNING:

The valves must be in the "active transport control system" position (see decal) to deactivate the spool valve action and prevent accidental lowering of the implement.

3.12 Linkage

3.12.1 Three-point linkage General

T001690

The tractor is supplied with a category 3 ball joint linkage.

IMPORTANT: *To prevent linkage damage when operating trailed attachments, care should be taken when turning to prevent the drawbar from fouling the linkage.*

3.12.2 Three-point linkage Lower links

T001691

Fixed ball joint type

Fig. 1. I005503

Telescopic lower links

Unlock pin (1) to adjust the telescopic end. Remember to lock it when hitched.

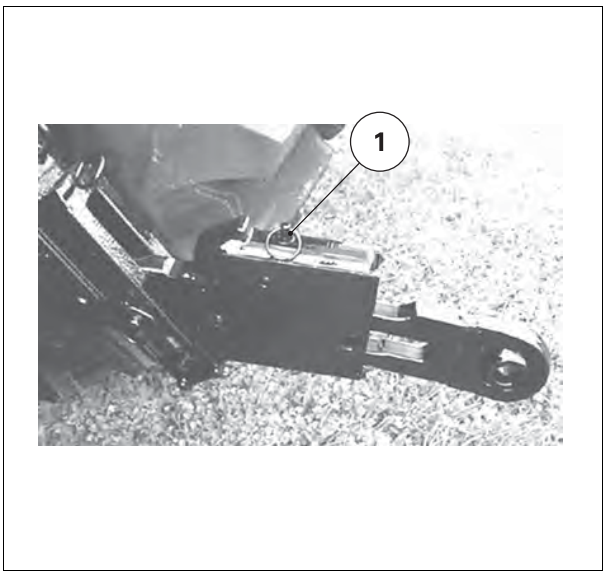


Fig. 2. I005505

3.12.3 Three-point linkage lift rods

T001594

WARNING:

Ensure that the pins are re-inserted correctly after every operation on the lift rods.

The lift rods have a hole (1) for a fixed high position and a slot (2) to accommodate two adjustment positions (a floating position and a fixed low position):

1. Fixed high position:
   Remove the pin (A) and insert the plate (B) into the hole (1). This position prevents the linkage arm from swaying vertically.
2. Floating position:
   Remove the pin (A) and insert the plate (B) vertically into the slot (2). This position allows the linkage arm to sway vertically.
3. Fixed low position:
   Remove the pin (A) and insert the plate (B) sideways in the bottom of the slot (3). This position prevents the linkage arm from swaying vertically.

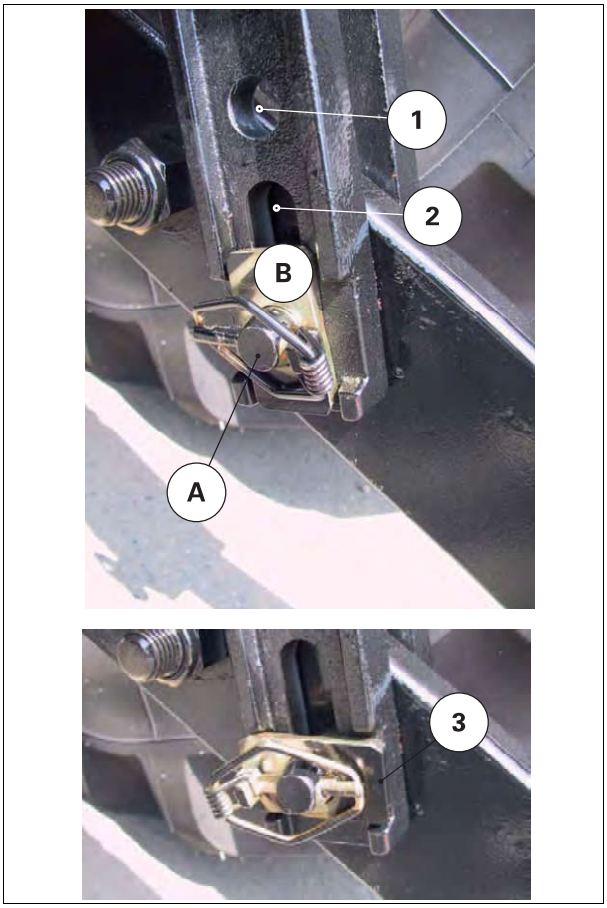


Fig. 3. I005422

3.12.4 Three-point linkage stabilizers

T001595

Description

Stabilizers are used to restrict the lateral movement of the linkage arms.

Two settings are possible for the stabilizers:

– Oscillation possible in transport position
– Oscillation not possible in transport position.

CAUTION:

Improper use of the stabilizer position may cause damage to them.

CAUTION:

To prevent stabilizer damage, do not shorten the lift rods or use the high travel lower link position once the above adjustments have been made.

Linkage arm adjustment procedure

Adjusting the linkage arms

1. Install authorized lower links
2. Adjust lift rods to the required length.
3. Adjust the travel of the rods along the linkage arms
4. Start the engine.
5. Place the linkage arms in the low position
6. Fully screw in the stabilizers (maximum oscillation)

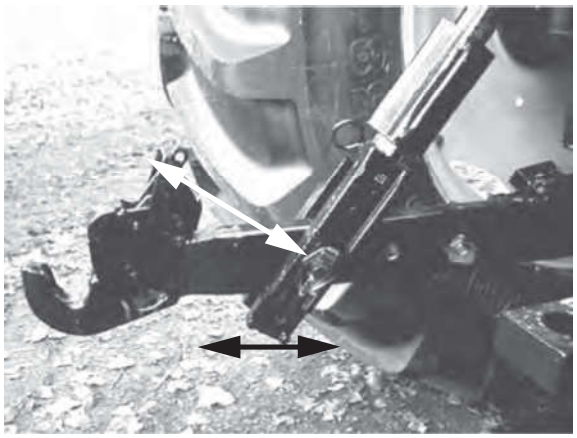


Fig. 4. I005424

Procedure to adjust stabilizers with oscillation possible in transport position

1. Raise the linkage to transport position
2. Turn off engine.
3. Unscrew the stabilizers to obtain the required oscillation

Fig. 5. I005425

Procedure to adjust stabilizers with no oscillation possible in transport position

1. Raise the linkage to transport position
2. Turn off engine.
3. Unscrew the stabilizers until the linkage arms no longer have any side sway and are centralized
4. Screw both stabilizers in 1 turn.

Fig. 6. I005425

3.12.5 Swinging drawbar

T001597

WARNING:
Maximum trailed weight: 25100 kg (55335 lb)

WARNING:
Maximum vertical load at hitch point: 1800 kg (3968 lb)

Swinging drawbar settings

– Height: A clevis is bolted either above or below the bar, thereby giving two possible height positions.
– Offset:
  a. Remove the clips and take out the clevis pins.
  b. Position the drawbar as required.
  c. Refit the clevis pins and secure them with clips to hold the drawbar in the required position.

Fig. 7. I005427

3.12.6 Roller type swinging drawbar

T001006

This drawbar is used with very heavy trailed implements. It moves on a track by means of rollers, which enables it to swing with the implement, thereby facilitating sharp turns at headlands.

3.13 Auxiliary hydraulics

3.13.1 General

T001314

3

7400 tractor series are available with the 110 l/min (29.1 gal/min (US)), 200 bar (2901 psi) hydraulic system. Optional: 150 l/min (39.6 gal/min (US)) .200 bar (2901 psi)

The tractor may be fitted with a maximum of 4 spool valves, each delivering 95 l/min (25.1 gal/min (US)). It may be fitted with up to 4 pairs of couplers at the rear and 2 pairs of couplers at the front.

The spool valve controls are grouped together on the right-hand console or on the armrest (FingerTIP SMS spool valve option).

IMPORTANT: *Do not operate the hydraulics unless the oil is warm. If necessary, allow the engine to run for several minutes before use.*
In the event of the hydraulics overheating, stop the tractor immediately.

3.13.2 Controls

T006885

(1) Control for mechanical spool valve
(2) Bosch SB23 electrohydraulic spool valve control

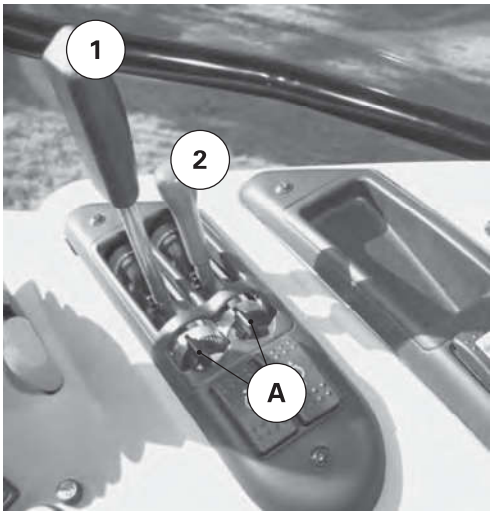
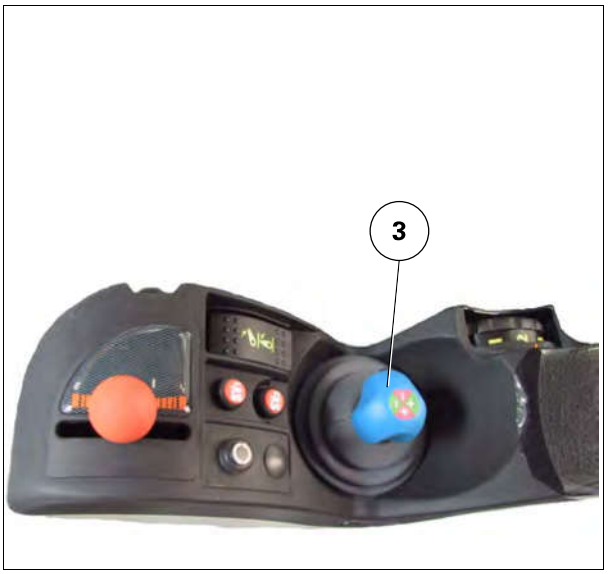


Fig. 1. I005415

The spool valves may also be controlled by the joystick (3) located on the armrest or by the SMS control fingers (FingerTIP (4)).



I018824

Fig. 2.

I005417

3.13.3 Description and use of the couplers

T006876

Depending on the configuration of the tractor, the tractor is fitted with rear couplers and front couplers.

These couplers provide a fast and sealed connection of the hoses for the implement being connected.

NOTE: *Before connecting an implement to the tractor, check to ensure that the connections are clean. Also check that the oil inside the implement system is not contaminated to ensure that it does not contaminate the tractor hydraulic functions.*

When continuously using hydraulic implements that take a large quantity of oil out of the transmission (hydraulic motors, large capacity cylinders), fill oil up to the maximum level on the dipstick and then add 10 l (2.6 gal (US)).
If using the tractor on steeply sloping ground, fill up to the maximum level on the dipstick.

3

Description of the rear couplers

The rear couplers are fitted with oil recovery units, which are located on the rear right-hand and rear left-hand trumpet housings. These recovery units should be checked and drained at regular intervals and under conditions that respect the environment.

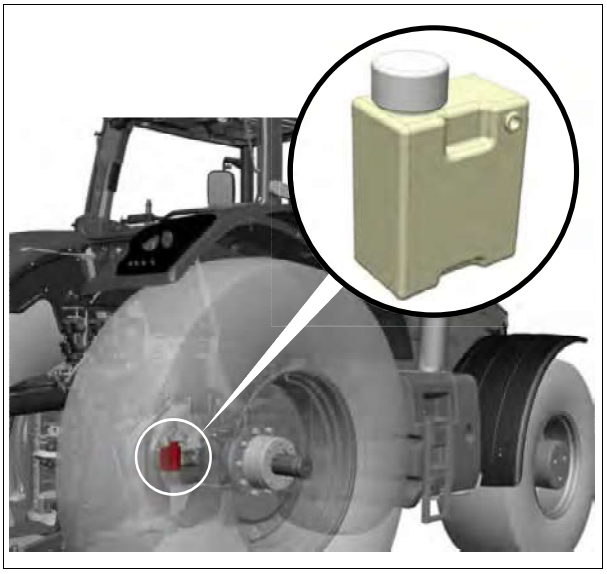


Fig. 3. I006124

Description of the front couplers

The tractor may be fitted with 2 pairs of front couplers.

Fig. 4. I017308

The front couplers are fitted with an oil recovery unit located behind the tractor front linkage.
This recovery unit should be checked and drained at regular intervals and under conditions that respect the environment.

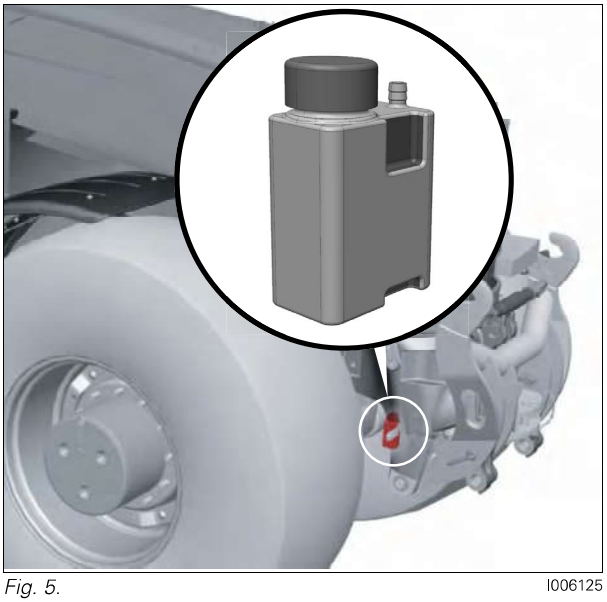
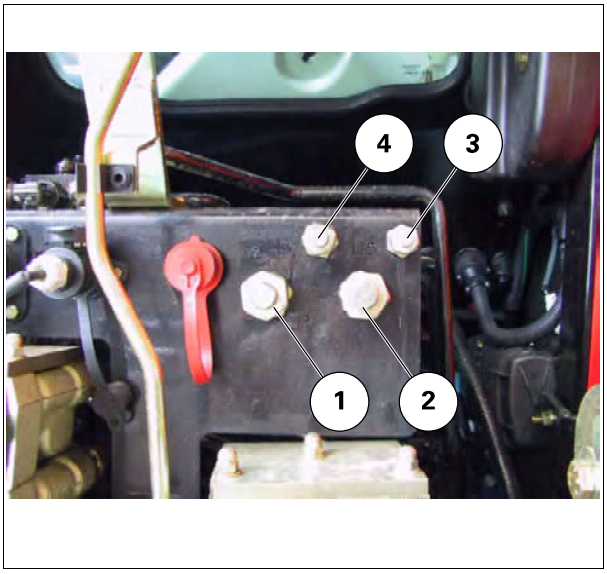


Fig. 5. I006125

Description of the additional hydraulic unions

Tractors are fitted with additional hydraulic unions for connecting accessories hitched to the tractor.
(1) Direct outlet pressure ((P))
(2) Tank return ((T))
(3) LS line (Load Sensing) ((LS))
(4) Drain return (D)

The drain return (4) allows an implement to be connected requiring no loss of load and no return resistance.
The drain return (4) is connected directly to the auxiliary hydraulic oil tank. It is used to receive low flow rates.
The LS line allows you to have a load sensor on an external circuit. It is therefore possible to supply this directly via the variable displacement pump without passing through the spool valves.
Thanks to the LS line connection (3), a potato harvester-loader implement or a self-loading trailer, for example, will have a flow rate adapted to demand and that can reach the maximum level supplied by the tractor pump.



I017303

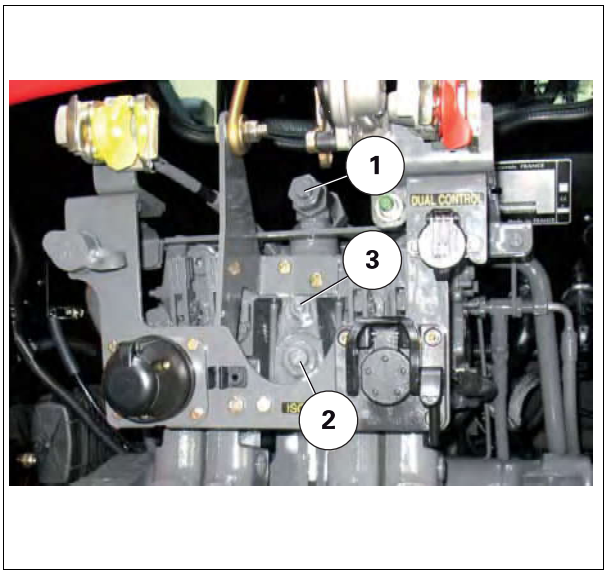


Fig. 6. I012867

Using the couplers and additional unions

There are different connecting methods, depending on the implement to be connected to the tractor (see examples below).

Implements fitted with two hydraulic rams and a hydraulic motor at the rear of the tractor
(1) Ram 1
(2) Ram 2
(3) Hydraulic motor
(4) Tank return

NOTE: *A spool valve can supply a flow rate of up to 95 l/min (25.1 gal/min (US)). If necessary, a hydraulic motor may be supplied by two spool valves (total of the two combined flow rates) as shown in the diagram.*

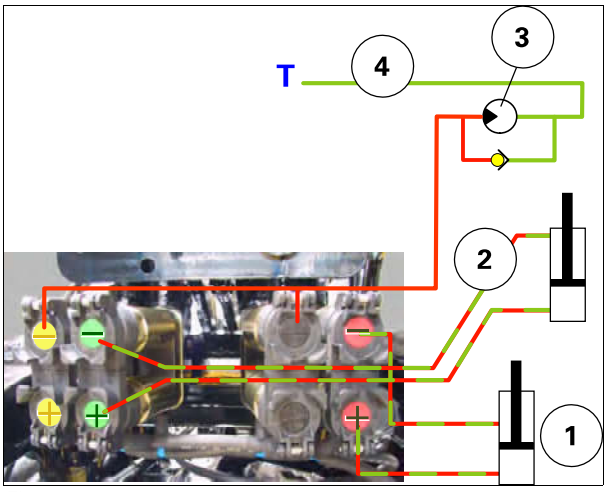


Fig. 7. I005699

3

Implements fitted with two hydraulic rams and a hydraulic motor with leakage return from the motor

(1) Ram 1
(2) Ram 2
(3) Hydraulic motor
(4) Tank return
(5) Drain return

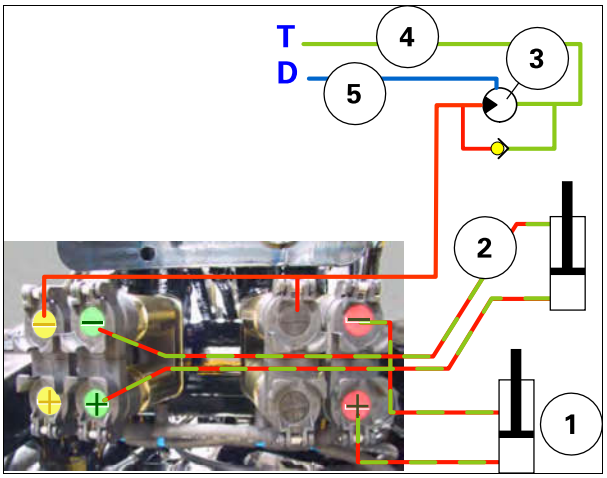


Fig. 8. I017307

Implement fitted with the load sensor

(1) Direct outlet pressure
(2) Tank return
(3) Connection to the load signal (LS)
(4) Control unit on the implement (solenoid valves)

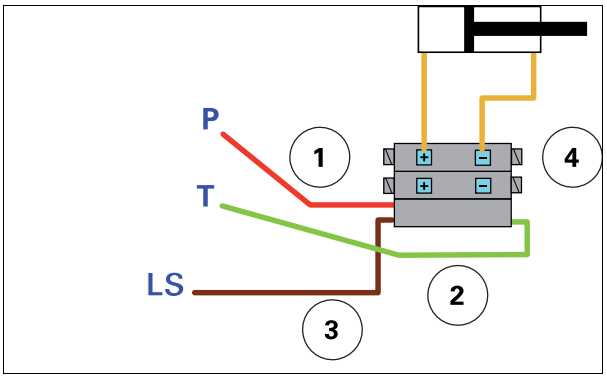


Fig. 9. I005700

Implement not fitted with the load sensor

(1) Direct outlet pressure
(2) Tank return
(3) Connection to the load signal (LS)
(4) Control unit on the implement (solenoid valves)

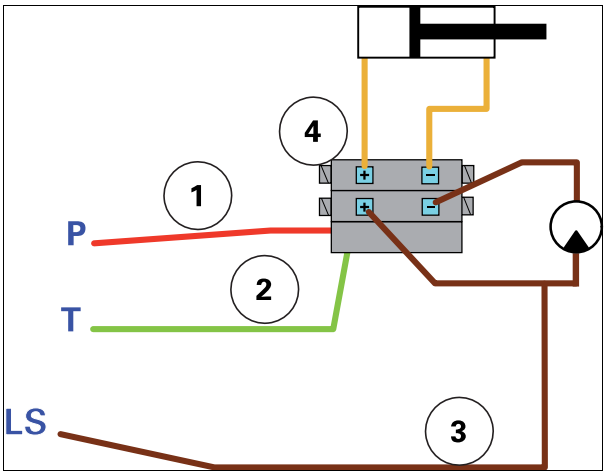


Fig. 10. I005701

Implement with two hydraulic rams not fitted with load sensor

(1) Direct outlet pressure + LS load signal
(2) Tank return
(3) Connection to the load signal (LS)
(4) Control unit on the implement (solenoid valves)

WARNING:
In this example of an assembly, the pressure is at maximum and so the oil will be very hot.

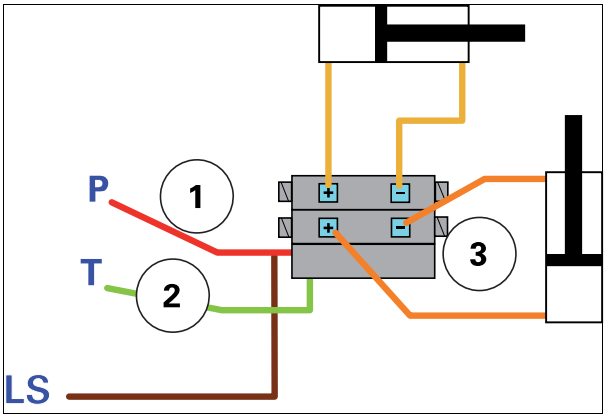


Fig. 11. I005702

Hydraulic motor and flow regulator
(1) Direct outlet pressure
(2) Tank return
(3) Connection to the load signal (LS)
(4) Valve and flow rate control valve

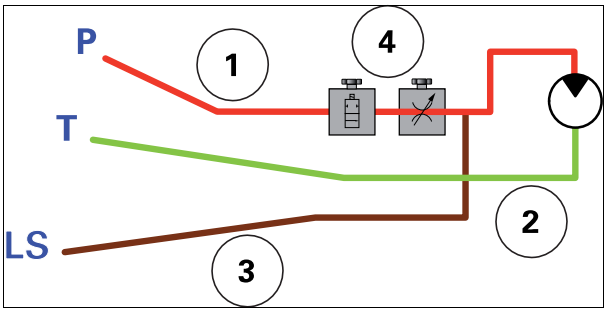


Fig. 12. I005703

Implements fitted with two hydraulic rams at the front of the tractor
(1) Ram 1
(2) Ram 2

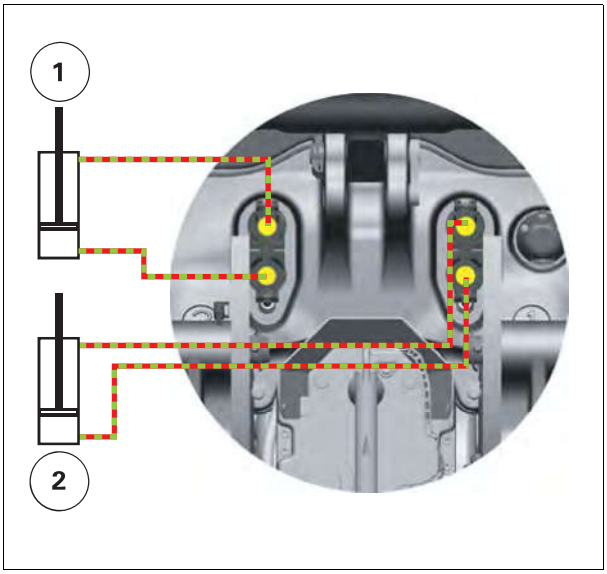


Fig. 13. I006173

3.13.4 Locking/unlocking hydraulic spool valve controls
T001605

Using the external controls

Tractors fitted with Datatronic 3

NOTE: *If the tractor is not fitted with Datatronic 3, the flow rate, storage, and unlocking buttons are fitted to the armrest.*

The red indicator light for the button (1) is lit and the locking icons are displayed on the Datatronic 3 (2) and (3) .*fig. 15*

Fig. 14. I005761

To unlock the controls, press the button (1) .*fig. 14*
The indicator light goes out.
The icons (2) on the Datatronic 3 disappear but the activation time for the spool valves (3) remains locked.
To unlock the spool valve activation time, press key «$_6$. The padlock icon disappears and the spool valve controls can now be used.

NOTE: *To set the spool valves, refer to the specific Datatronic 3 documentation, in the "VALVES APPLICATION" chapter.*

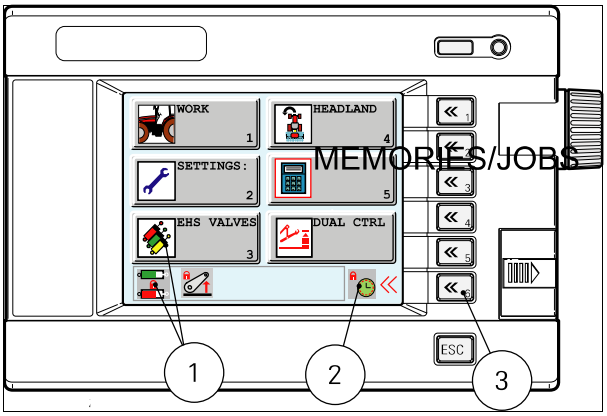


Fig. 15. I005760

Tractors without Datatronic 3:
The red indicator light for the button (1) is lit. To unlock the controls, press the button (1). The indicator light goes out and the spool valve controls can now be used.

NOTE: *To set the spool valve values, see §3.13.5, page 147.*

Fig. 16. I017433

"SMS" joystick control

(1) 4-function control joystick (separate or combined) *fig. 18*.

(2) Control for additional functions, e.g., : loader (open/close jaws). To use this function, press and hold the control and move the joystick towards C or D *fig. 18*.
Operation
When starting the engine, the joystick is unavailable and the red indicator light is lit.
When Datatronic 3 is installed, the corresponding settings in the active window are locked (padlock visible on the half-screens).

1. Press the button (4) *fig. 17* to activate the joystick; the red indicator light goes out and the padlock icon disappears from the half-screens; adjustment via Datatronic 3 is now possible.
2. Move and hold the joystick in the desired direction to obtain the required movement; the movement stops as soon as the joystick is released.
3. When the joystick is moved to its limit of travel, beyond its locked B1/C1 floating position, and then released immediately,

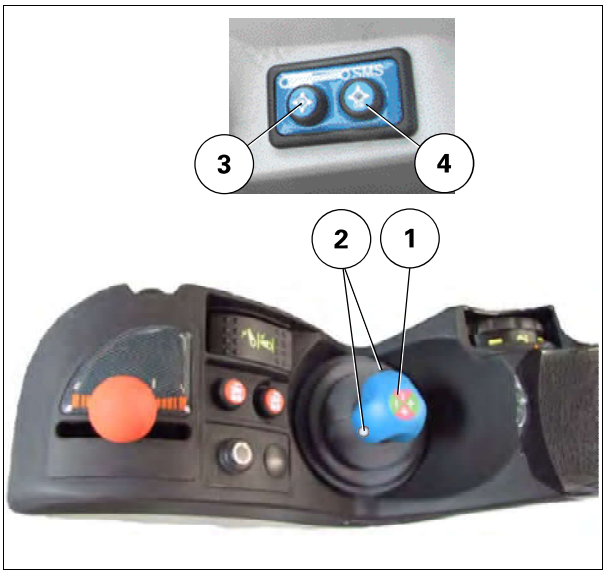


Fig. 17. I017431

the movement is automated, and when in OFF position the "~" symbol is displayed on the lower screen.

NOTE: *The speed and duration of the movements depend on the parameters previously recorded on the Datatronic 3. To cancel the values, press the button (3) for approximately 5 seconds (default values 100%).*

4-function control joystick

Description

- A: Lifting
- B: Lowering
- C: Emptying (bucket loader)
- D: Filling (same example as C)

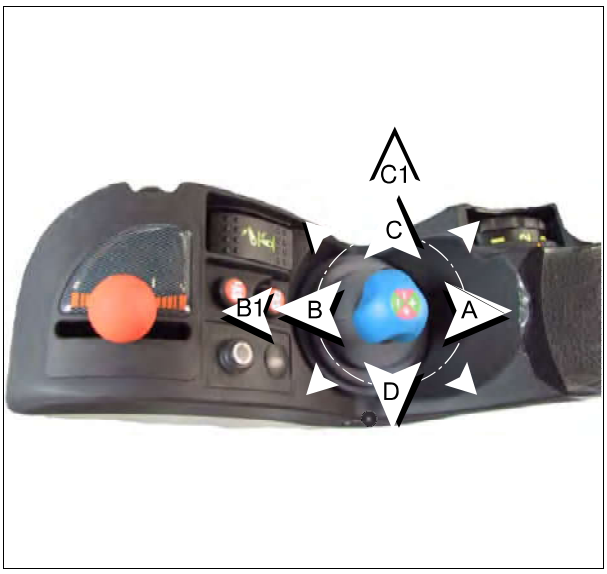


Fig. 18. I017507

Setting joystick parameters

For details on the correct use of the Datatronic 3, refer to the specific documentation, chapter 4 SETTING HYDRAULIC SPOOL VALVE PARAMETERS.

Flow rate setting (models without Datatronic 3)

Joystick in neutral position: The floating position cannot be used; the hydraulic flow is at its maximum.

Joystick in any other position: Move the joystick in the desired direction(s) and press the button (3) briefly to store the flow rate.

If a stored flow rate must be changed or cancelled, operate the joystick then keep the memory button (4) pressed for 5 seconds to restore the maximum flow rate.

All the pre-recorded flow parameters can be reset simultaneously by pressing the memory button (4) for approximately 5 seconds with the joystick in the neutral position, irrespective of which version is installed. The indicator light flashes during this time.

Fig. 19. I018878

3.13.5 Setting flow rates and time delay

T001949

If the tractor is fitted with Datatronic 3, refer to the Datatronic 3 Operator Instruction Book for details on how to adjust the hydraulic spool valves.

Otherwise, the adjustments are made via the DOT Matrix screen (1 screen per spool valve) *fig. 20*.

(1) Spool valve number
(2) Flow rate percentage in the lifting phase
(3) Flow rate percentage in the lowering phase
(4) Kick-out activation time

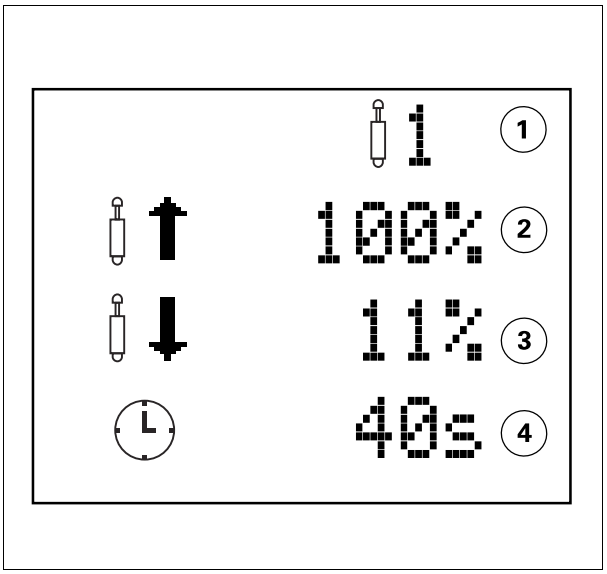


Fig. 20. I004932

The Kick-out activation time function is used to adjust the activation time for the various spool valves.
For a setting of 0 to 60 seconds, the engaged spool valve shuts off after the set time delay has elapsed.
For a permanent setting, the infinity icon ∞ should be selected so that the spool valve remains permanently engaged after engaging.

3.13.6 Hose connection

T001601

IMPORTANT: *Before connecting a hydraulic hose, ensure that the control levers are in neutral position and that no hydraulic spool valve activation time is running. For details on setting the hydraulic spool valve activation times, refer to the specific documentation in the "VALVES APPLICATION" chapter if the tractor is fitted with Datatronic 3. Otherwise,* *see §3.2.2, page 89.*

To mark the position of the couplers, the color on the locking control for each lever as well as the colors on the joystick and the FingerTIP controls correspond to the colors of each of the auxiliary spool valve coupler covers (A).

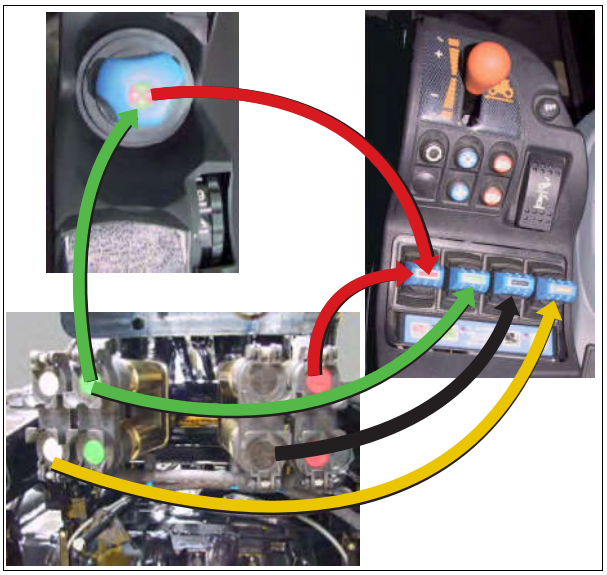


Fig. 21. I017765

IMPORTANT: *The two hoses for a ram must be connected to the "+ and -" auxiliary spool valve outlets of the same color (A).*
Before connecting, ensure that the hydraulic hoses are clean, to avoid contaminating the hydraulic system.

NOTE: *Keep male and female couplers clean at all times.*

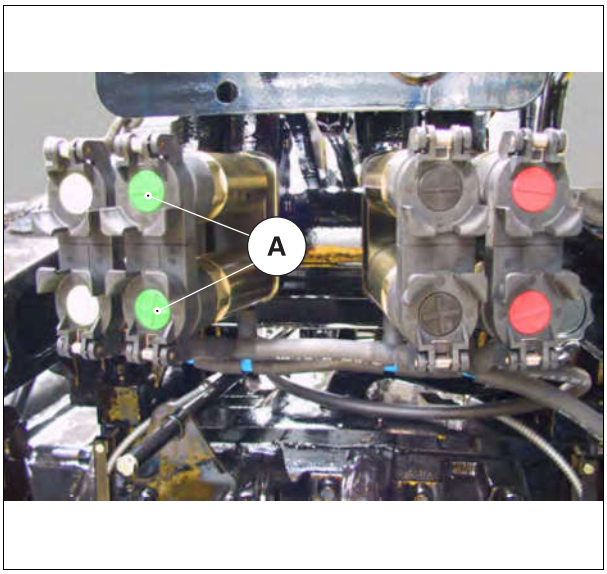


Fig. 22. I005419

3.13.7 Disconnecting the hoses

T001602

IMPORTANT: *Before taking off the hydraulic hoses, lower the implement to the ground and place the relevant spool valve lever in the floating position.*

3.13.8 Control levers

T001608

Using the control levers

(1) Mechanical levers
(2) Electrohydraulic levers

– Neutral position
Each spool valve controlled by a lever (A) can be held in various positions by actuating the lock (D)

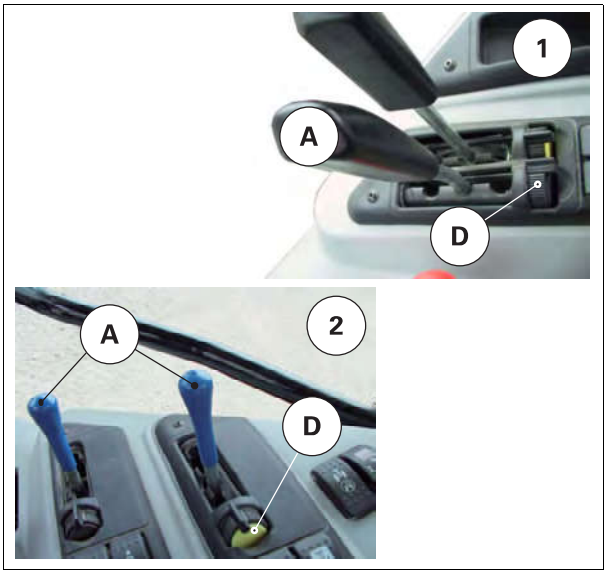


Fig. 23. I005685

– Ram rod extended position

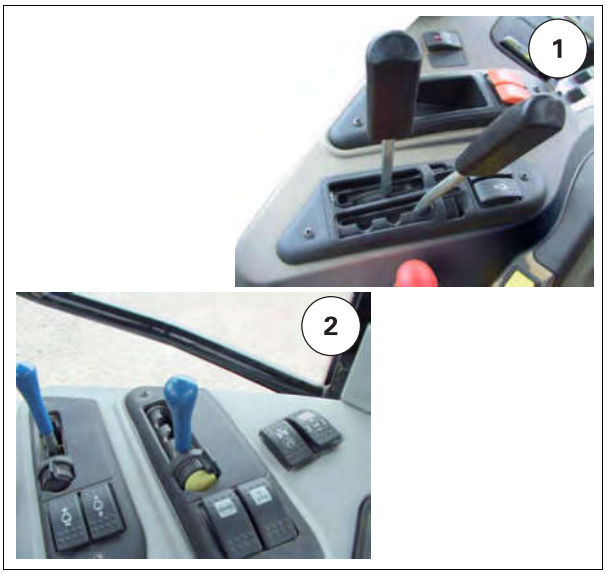


Fig. 24. I005694

– Ram rod retracted position

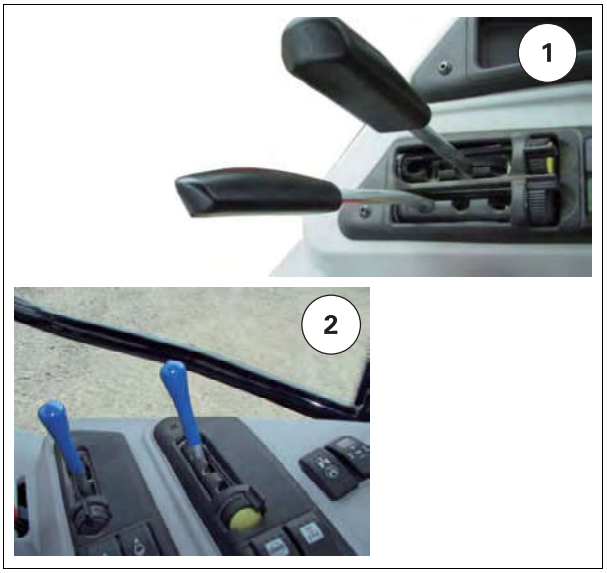


Fig. 25. I005693

– Floating position
To activate the floating position, push the lever to its maximum position (E), then release it. The lever returns to its initial position, while the spool valve is in floating position.
To deactivate the floating position, move the lever to any position. The spool valve switches to neutral position.

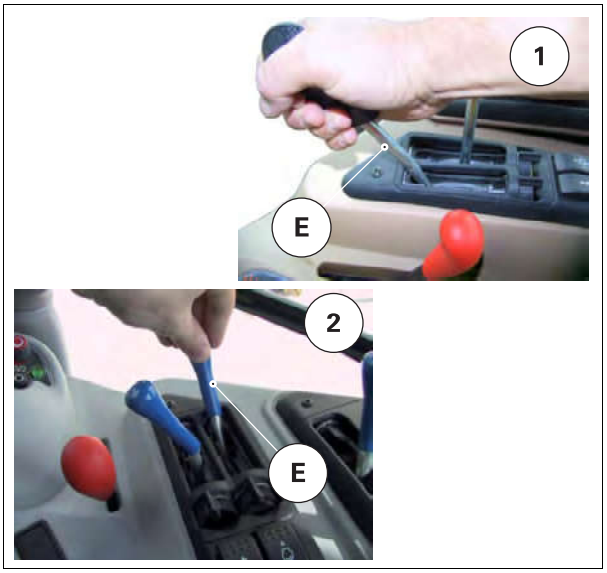
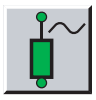


Fig. 26. I005695

Use with Datatronic

NOTE: *If the tractor is fitted with Datatronic 3, ensure that the "Floating" function is available for each spool valve. Refer to the Datatronic 3 manual for information on activating this function.*

Floating position unavailable



Floating position available

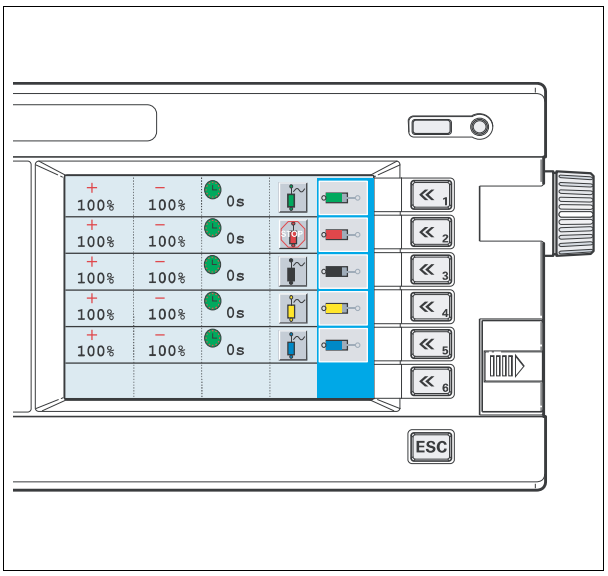


Fig. 27. I005696

3.13.9 "SMS" control (FingerTip)

T001609

Description

(1) 1st spool valve "SMS" control (red).
(2) 1st spool valve floating position switch and indicator light.
(3) 2nd spool valve "SMS" control (green).
(4) 2nd spool valve floating position switch and indicator light.
(5) 3rd spool valve "SMS" control (black).
(6) 3rd spool valve floating position switch and indicator light.
(7) 4th spool valve "SMS" control (yellow).
(8) 4th spool valve floating position switch and indicator light.
(9) Flow rate storage control or resetting of a stored flow rate.
(10) Spool valve ON/OFF control.

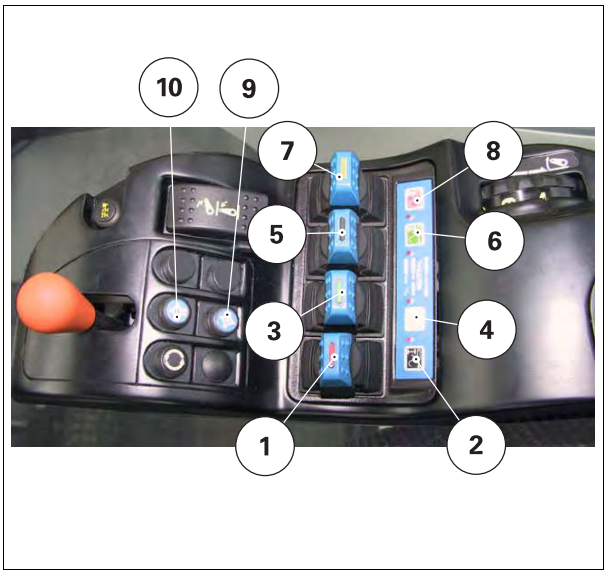


Fig. 28. I005709

Using the "SMS" controls

1. Unlock the spool valve controls see (*see §3.13.4, page 145*).

2. Neutral position (A)
3. To retract the ram rod, push the lever towards (B).
4. To extend the ram rod, pull the lever towards (C).
5. Push the lever as far as it will go towards (D) to lock the control.
6. To obtain the floating position, press switch (11) corresponding to the spool valve. The red indicator light comes on. Push the lever to (B) and then (D) to lock it.
   NOTE: *Pulling the lever to (C) and then (D) does not obtain floating position.*
7. To cancel the floating position, restore the lever to (A) then press on the switch (11). The red indicator light goes out.

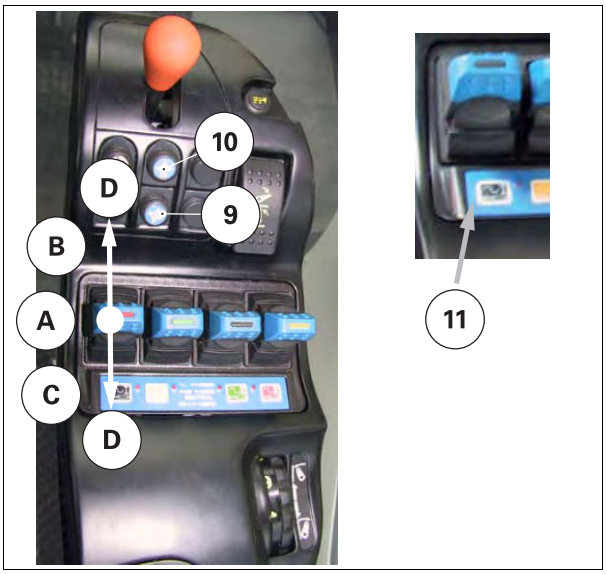


Fig. 29. I005710

Storing a flow rate

NOTE: *If the tractor is fitted with Datatronic 3, please refer to the "VALVES APPLICATION" chapter in the specific documentation for storing flow rates and activation times for each spool valve.*

When the engine is started, the spool valve controls are not available and the red indicator light of the button (10) is lit.
When Datatronic 3 is installed, the corresponding icon in the window is locked (padlock symbol displayed).

1. Press the button (10) to activate the spool valve controls. The red indicator light goes out (on the optional Datatronic 3 screen, the padlock icon vanishes from the screen) and it is now possible to enter settings in Datatronic 3.
2. Move and hold a spool valve control in the desired direction to obtain the desired movement; the flow stops as soon as the control is released.
3. If you wish to store the flow rate, hold the control in the required position and press the key (9) for one second.
   NOTE: *When using one of the controls, regardless of the position it is moved to, the flow rate generated will be the one stored previously. To cancel the values, press the button (9) for approximately 5 seconds (default value 100%).*

3.13.10 Emergency manual spool valve control

T001610

In the event of joystick or spool valve control faults, emergency controls are available to "Lift/Lower" the installed attachments manually.
Button (10) (ON/OFF, *fig. 29*) flashes and the relevant error code is displayed on the onboard computer (if fitted).

Operation

Activate one of the levers on the spool valves by pushing as shown (A) to lower or by pulling as shown (B) to lift.
Stop the engine, then restart it to reactivate the joystick.

NOTE: *It is recommended to insert a pin or screwdriver in the corresponding lever hole to make it easier to move the spool valves.*

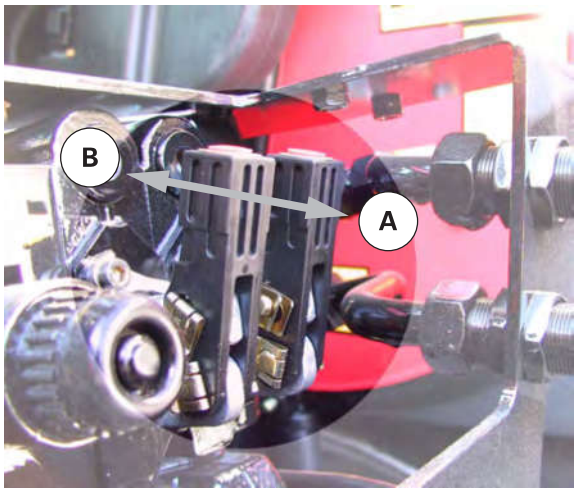


Fig. 30. I005714

3.14 Front-end loader function

3.14.1 Using the front-end loader

T001549

Comply with the following instructions when using a front-end loader.

3

1. Take the front weight off tractors with front linkage, including the liquid ballast in the front wheels.
2. Set the front wheel track to the widest track permitted by the width of the bucket.
3. If the tractor is fitted with a front linkage, remove the lower arms of the front linkage before using the loader.

3.14.2 Layout of components

T006053

Joystick lever

The joystick lever controls 4 functions of the front-end loader.

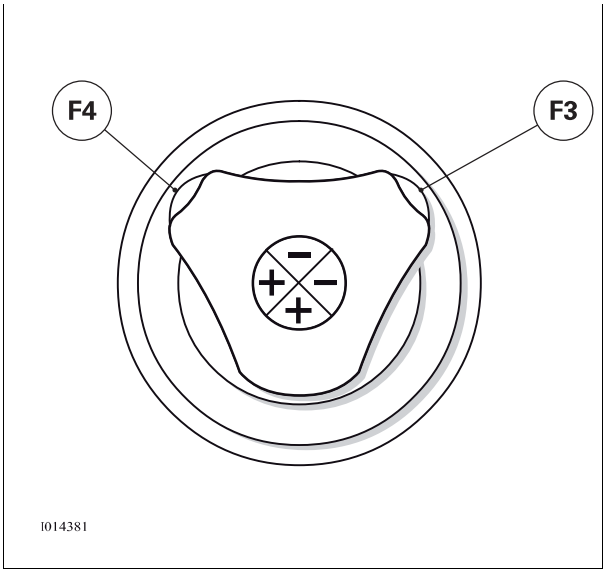


Fig. 1. I014381

Hydraulic activation

(1) Memory button
(2) Hydraulic function activation button

To activate the hydraulic functions, press (1). The red indicator light located in the center of the button should switch off.

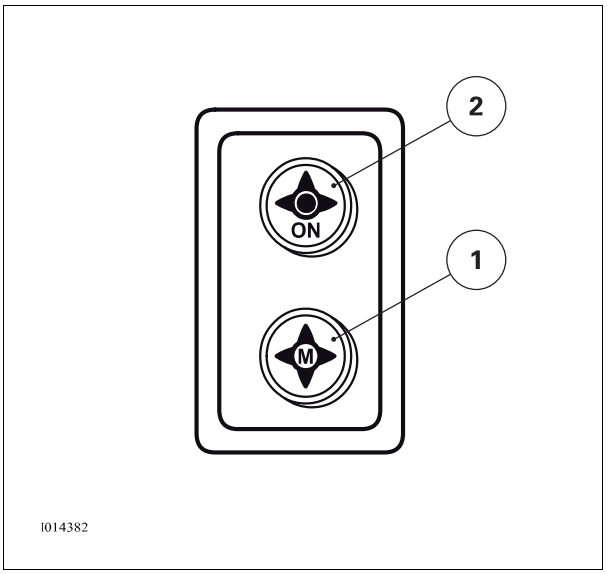


Fig. 2. I014382

Front-end loader activation

The activation button for controlling the loader with the joystick is located on the right-hand pillar of the cab.

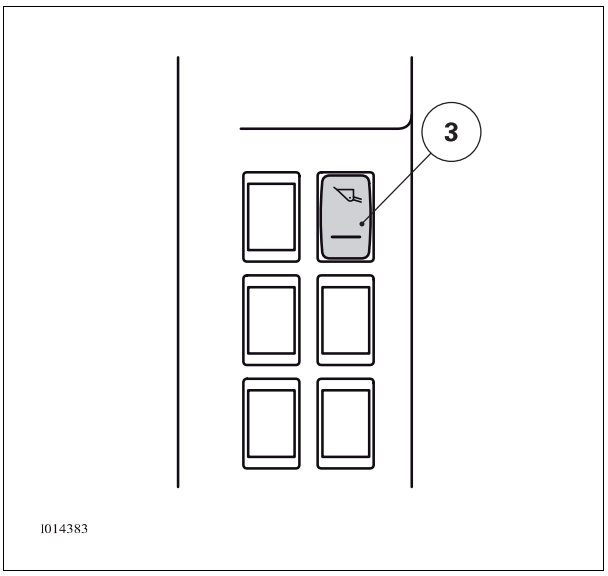


Fig. 3. I014383

Flow rate control DOT Matrix screen

This screen adjusts the oil flow for each loader function

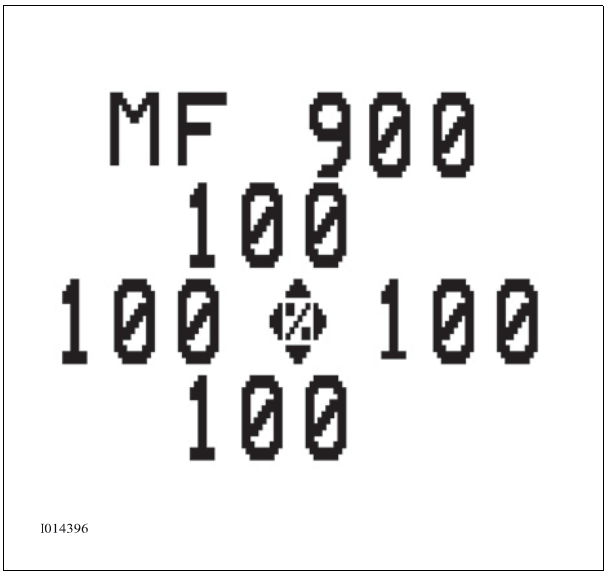


Fig. 4. I014396

Front-end loader functions DOT Matrix screen

This screen allows the following functions to be viewed or activated:

- 3rd function locking
- Speed reduction
- Arm suspension
- 3rd function continuous power supply
- Automatic bucket mode
- Locking/unlocking accessories

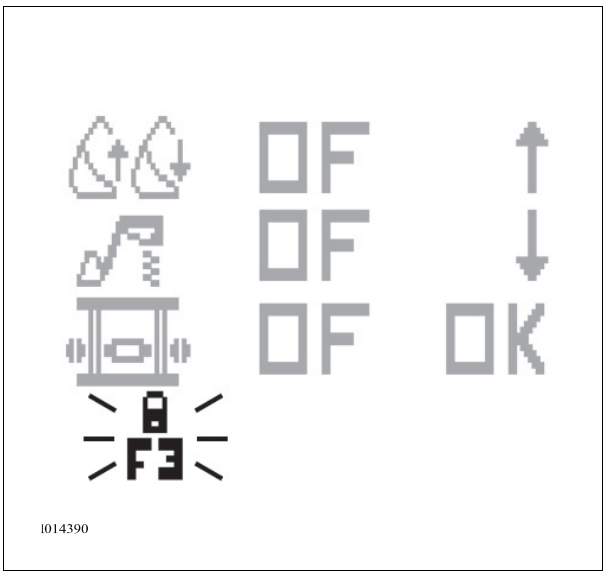


Fig. 5. I014390

3.14.3 Using the front-end loader controls

T006054

Activating the front-end loader

1. ***IMPORTANT:*** *The tractor hydraulics must be deactivated to use the loader. The red indicator light located in the center of button (1) fig. 2 should be on.*

   To activate control of the front-end loader with the joystick, press the button as shown by (1). The red indicator light on the button lights up.

2. To stop control of the front-end loader with the joystick, press the button as shown by (2). The red indicator light on the button goes out.

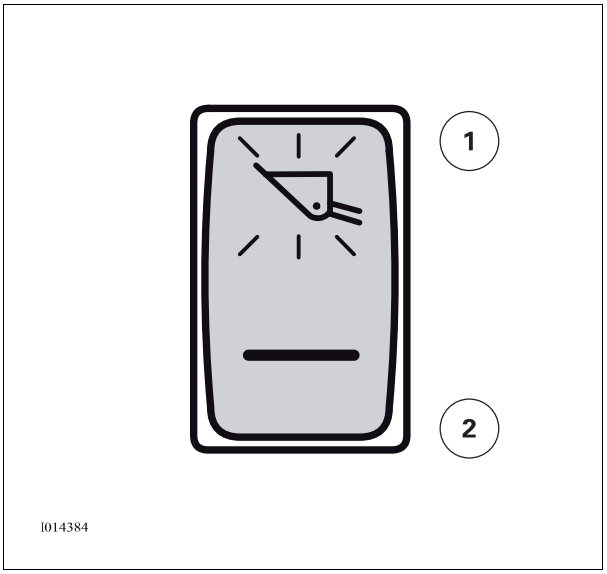


Fig. 6. I014384

Joystick functions for the front-end loader

1. Lower the front-end loader arms by pushing on the joystick towards (1)
2. Raise the front-end loader arms by pulling on the joystick towards (3)
3. Tilt the front-end loader implement forwards by pushing on the joystick towards (2)
4. Tilt the front-end loader implement backwards by pushing on the joystick towards (4)

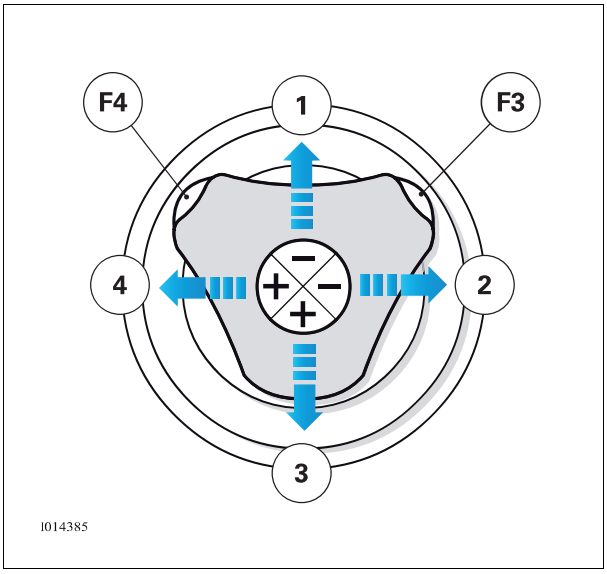


Fig. 7. I014385

Floating position

Activation

1. Push the joystick lever as far as it will go towards (1) to obtain the floating position.

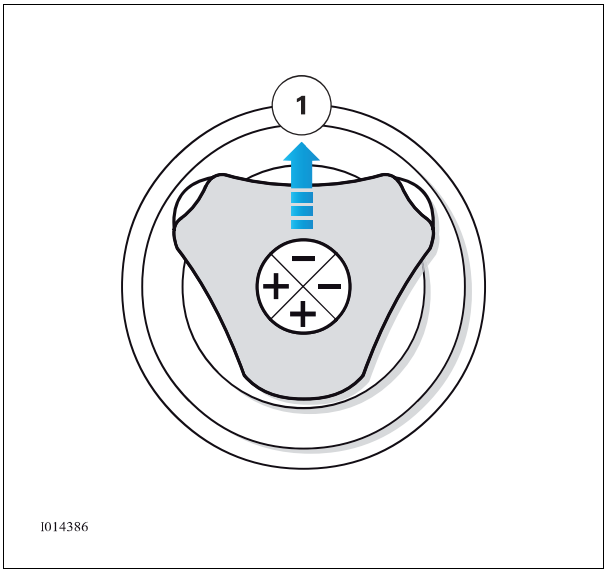


Fig. 8. I014386

Cancelling

2. Pull the joystick towards (2) to cancel the floating position.

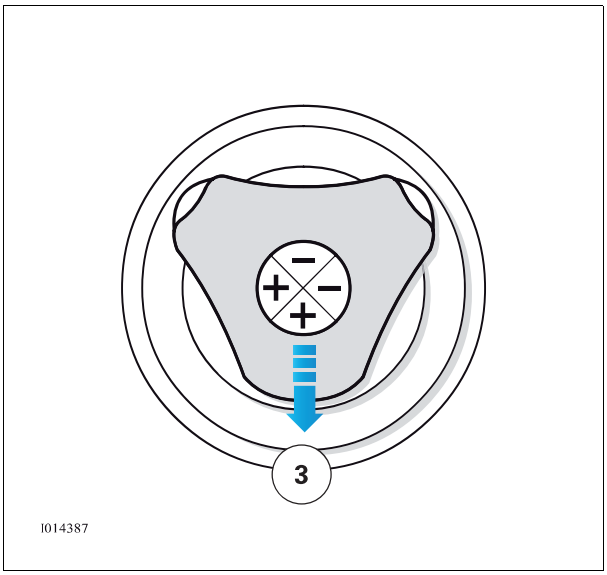


Fig. 9. I014387

3rd and 4th functions

IMPORTANT: *The 3rd and 4th functions are activated temporarily.*

3rd function

1. Press and hold button (F3)
2. Move the joystick to the left or to the right to move the implement

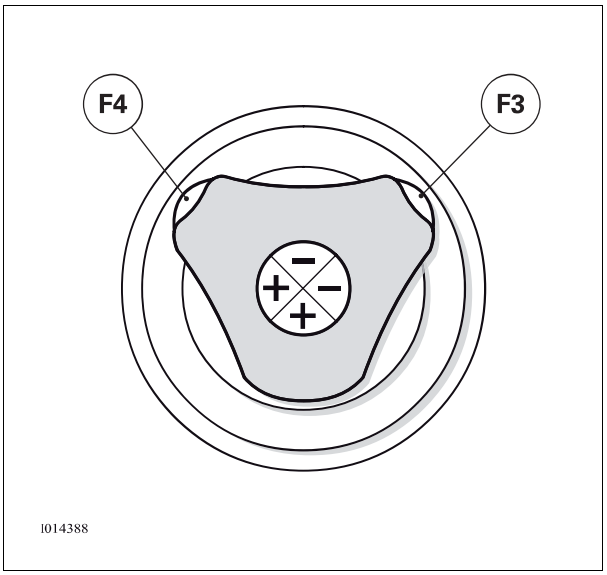


Fig. 10. I014388

4th function

3. Press and hold button (F4)
4. Move the joystick to the left or to the right to move the implement

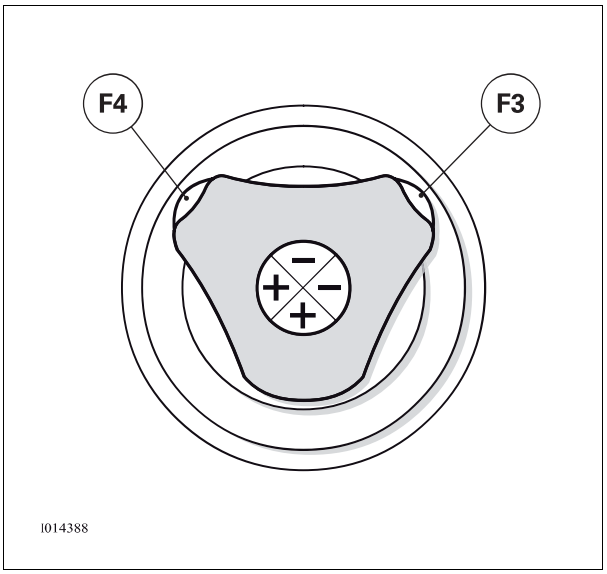
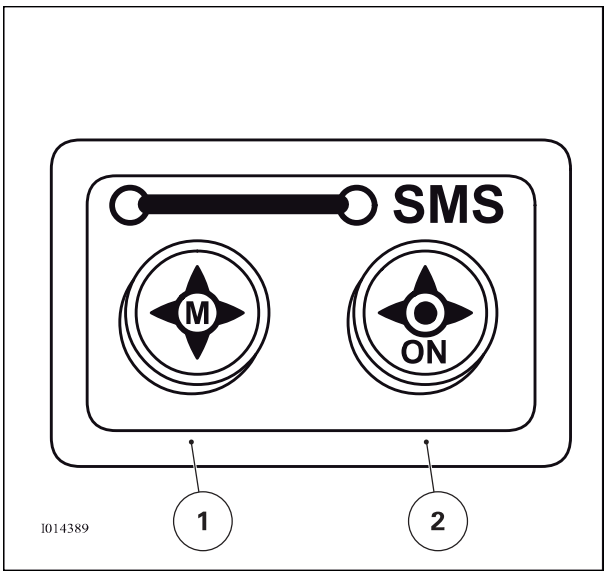


Fig. 11. I014388

Locking the F3 function

Activation

1. Press the memory button (1) and the (F3) button simultaneously
2. The F3 function is locked



I014389

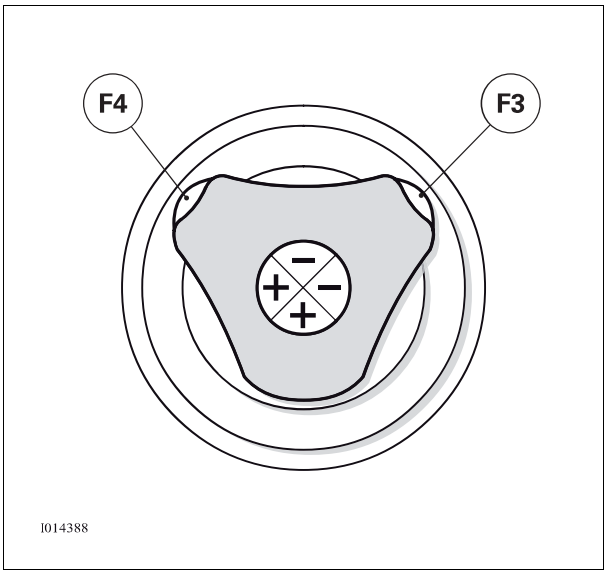


Fig. 12. I014388

3. On the corresponding DOT Matrix screen, "F3" appears with a padlock.

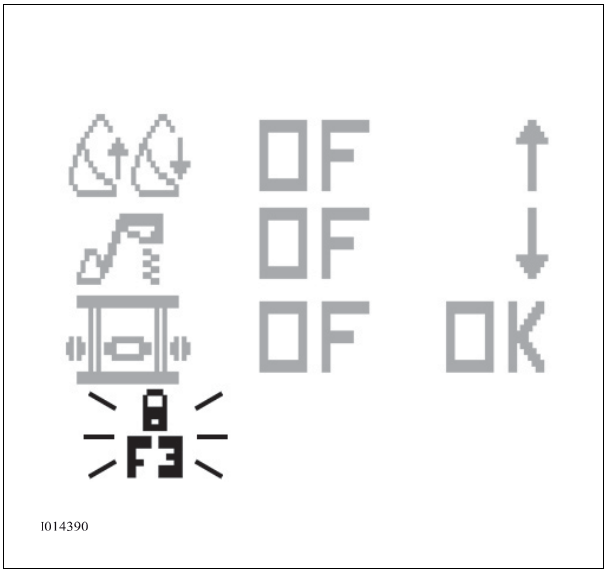


Fig. 13. I014390

3

Off

4. To stop, press (F3)
   The padlock displayed on the DOT Matrix screen disappears

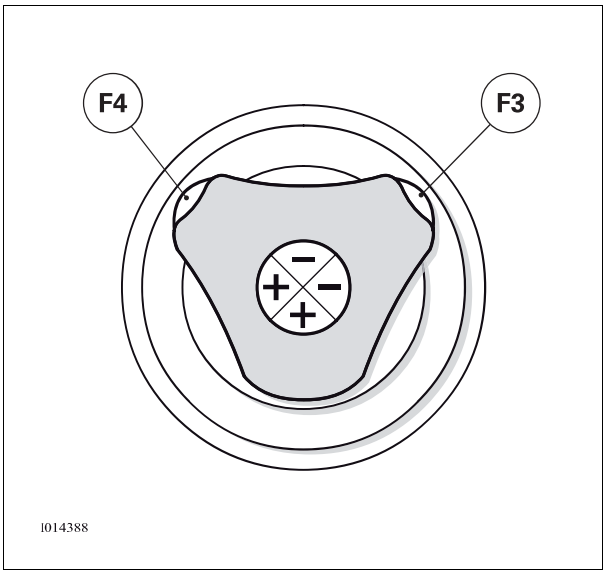
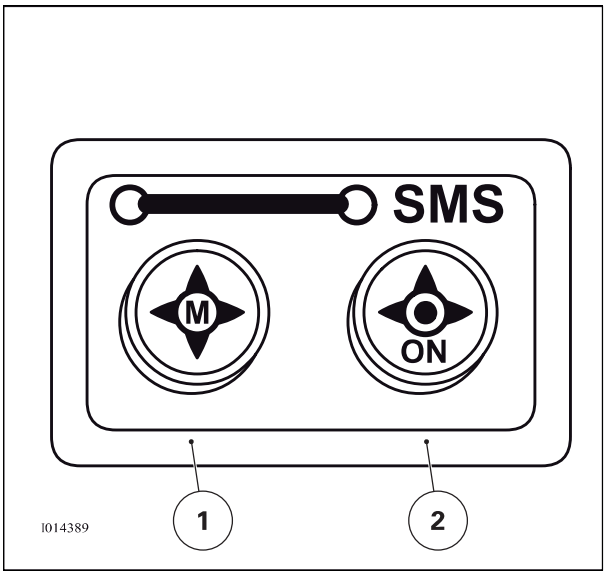


Fig. 14. I014388

Speed reduction

NOTE: *When starting the tractor engine, this function is always deactivated.*

1. To activate speed reduction, press the memory button (1)
2. A tortoise appears on the front-end loader control DOT Matrix screen
   When this function is activated, increased joystick effort is required for the loader movements to start to take effect.
   This function makes it possible to control the loader more precisely with the joystick.
3. To deactivate speed reduction, press the memory button (1)



I014389

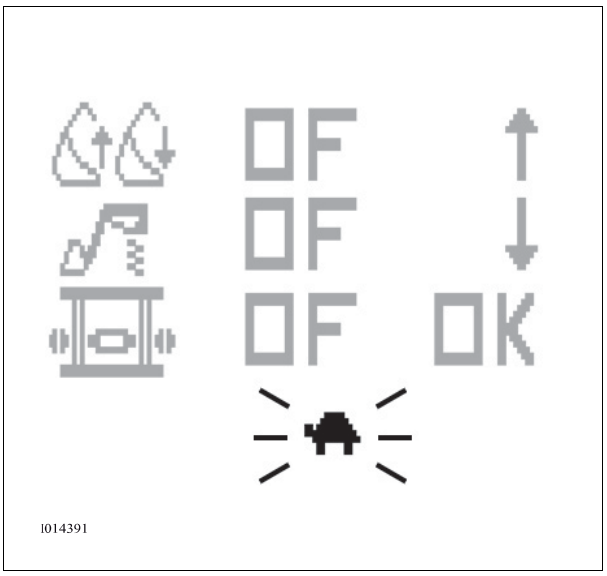


Fig. 15. I014391

Arm suspension

NOTE: *The arm suspension function position is stored in the tractor's electronic system when the engine is stopped.*

1. Go to the corresponding DOT Matrix screen
2. Using the down arrow on the control keypad, activate the suspension
3. "ON" appears on the screen when the suspension is active
4. Press the down arrow on the control keypad again to stop the arm suspension
5. "OFF" appears on the screen

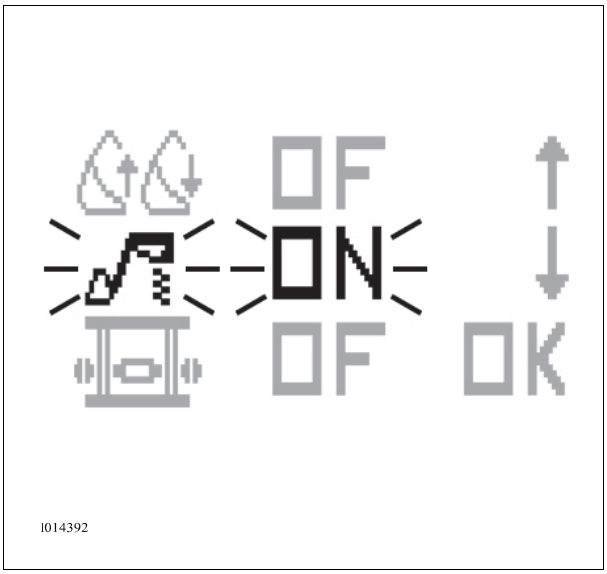


Fig. 16. I014392

F3 function continuous power supply

NOTE: *This function is used, for example, to control a hydraulic motor fitted on a silage facer bucket.*

DANGER:
Check that there is no risk of injury in the work area before locking the function

1. Press (F3) while moving the joystick lever to the right or the left for 10 seconds
2. A continuous flow of oil will be supplied to the implement connected to the F3 function
   NOTE: *This function remains active with the lever in neutral.*
3. The "infinity" symbol appears on the DOT Matrix screen
4. To stop the continuous flow, move the joystick in the opposite direction

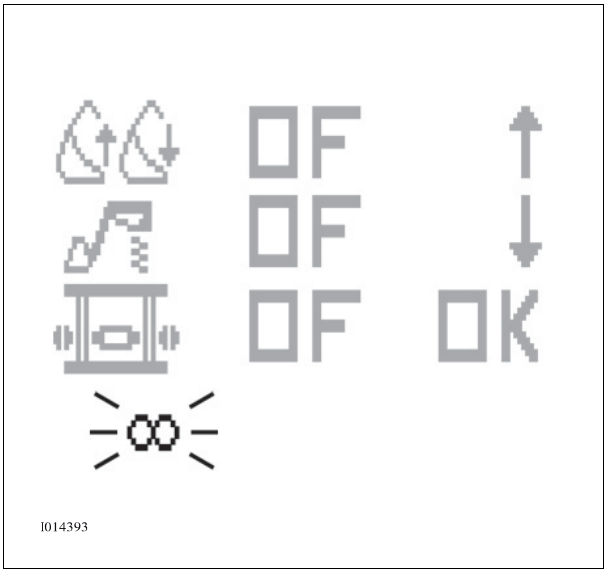


Fig. 17. I014393

Automatic bucket mode

NOTE: *This function is active whatever position the joystick is in.*

1. Go to the corresponding DOT Matrix screen
2. Using the up arrow on the control keypad, activate the function
3. "ON" appears on the screen with the symbols "F3 F4" at the bottom of the screen when the automatic function is active.
4. Pressing the (F3) button allows the claw of the bucket to be opened without having to move the joystick
5. Pressing the (F4) button allows the claw of the bucket to be closed without having to move the joystick
6. Press the up arrow on the control keypad again to stop the automatic function
7. "OFF" appears on the screen and the "F3 F4" symbols are deleted.

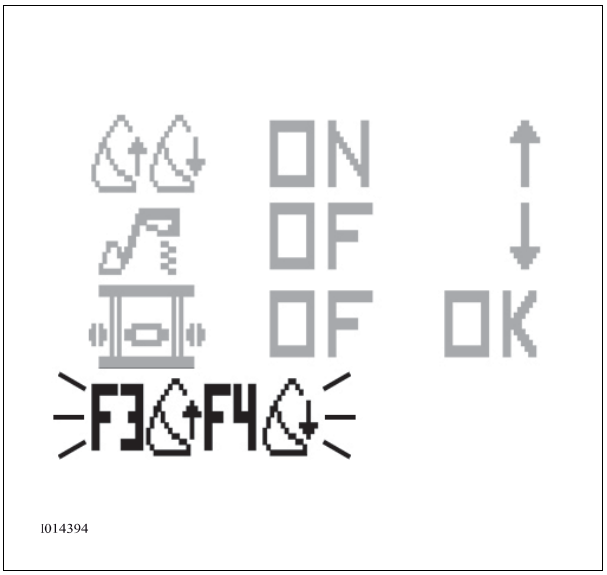


Fig. 18. I014394

Locking and unlocking accessories

NOTE: *This is a temporary function.*
The function is deactivated as soon as the button is released

1. Go to the corresponding DOT Matrix screen
2. Press "OK" and keep the button pressed down
3. At the same time, press (F3) and move the joystick to the right or left to lock or unlock the accessories

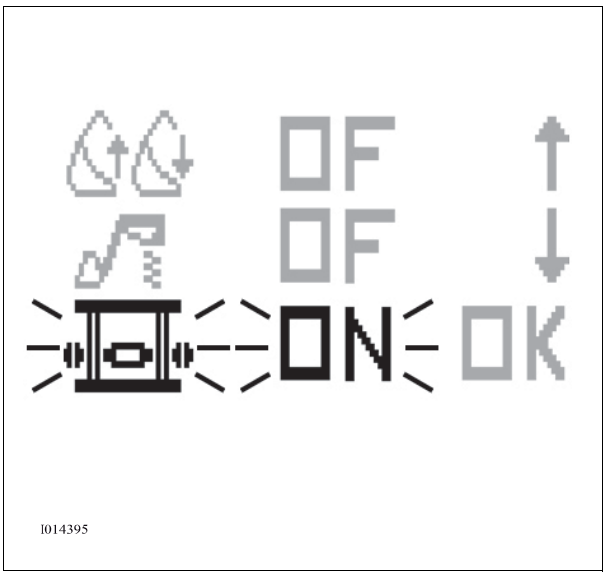
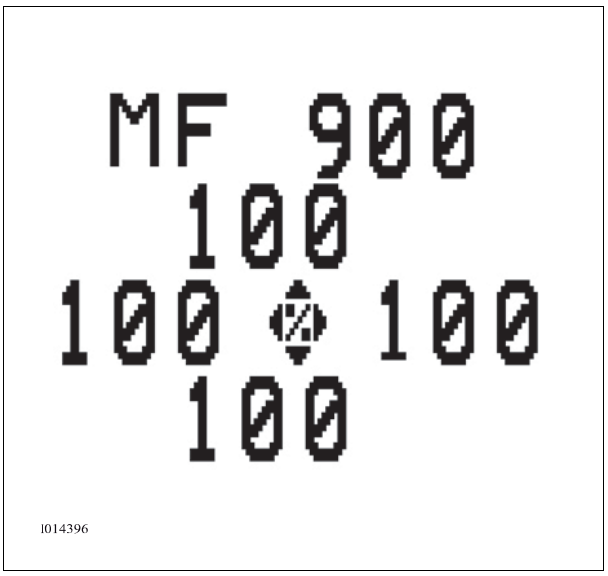


Fig. 19. I014395

Setting flow rates

1. Go to the corresponding DOT Matrix screen
2. Move the joystick in the direction required and press the flow rate memory button (1)
3. The output flow rate required is stored
4. Repeat the operation for each function
   NOTE: *The flow rates are registered as a percentage.*
   100% is the maximum flow.
5. Press the memory button (1) for 5 seconds to cancel all of the stored values



I014396

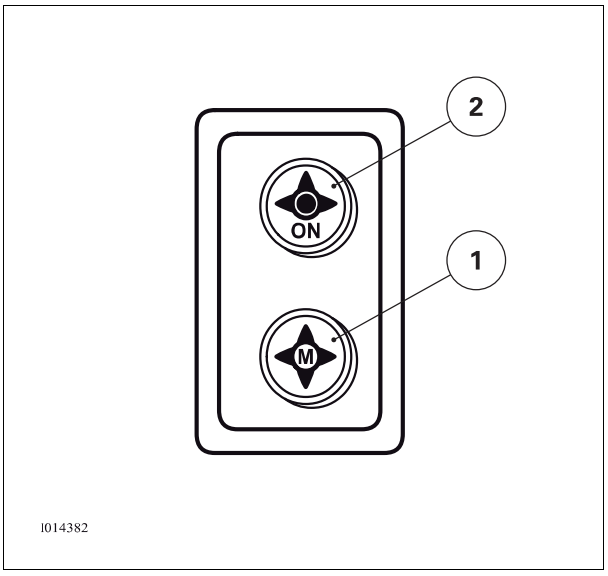


Fig. 20. I014382

Increasing engine speed

This function is designed to increase the engine speed when the joystick is in use in order to increase the speed of loader movements.

NOTE: *This function is only active if the engine speed is idling when the joystick is being used.*

1. Go to the corresponding DOT Matrix screen

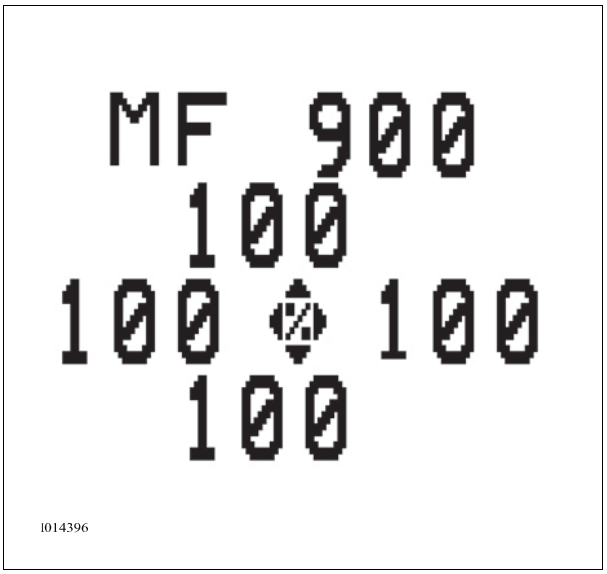


Fig. 21. I014396

2. Press on the control keypad. The engine symbol (1) appears on the DOT Matrix screen. When this function is active and the engine speed is idling, using the joystick for the loader will increase the engine speed in order to increase the speed of loader movements.
   Engine speed increase values:
   - Lowering the loader arms: engine speed + 0 rpm
   - Lifting the loader arms: engine speed + 700 rpm
   - Dumping/digging: engine speed + 300 rpm
3. To cancel this function, press on the control keypad. The engine symbol (1) disappears from the DOT Matrix screen.

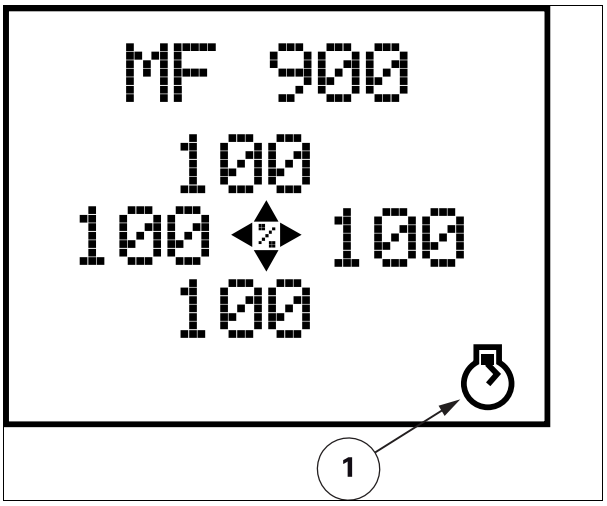


Fig. 22. I022154

3.15 Wheels and tires

3.15.1 Wheel studs

T001011

WARNING:
Always tighten the wheel screws and nuts to the correct tightening torque.

Check the tightness of the wheels every day, until there is no longer a variation in the torque provided. After refitting a wheel, check the tightness of the wheel after the first two hours of operation and then every day.

3.15.2 Adjusting the front wheel track width

T008041

2-wheel drive

The front track width is adjustable in increments of approximately 100 mm (3.9 in).

Theoretical track widths Standard fixed rim offset = 15 mm (0,59 in) Disc thickness = 10 mm (0,39 in)	
Min.	**Max.**
1630 mm (64.2 in)	1710 mm (67.4 in)
1730 mm (68.2 in)	1810 mm (71.3 in)
1830 mm (72.1 in)	1910 mm (75.3 in)
1930 mm (76.0 in)	2010 mm (79.2 in)
2030 mm (80.0 in)	2110 mm (83.1 in)

Settings

NOTE: *Limit the load on the front axle beam when using wide track widths.*

WARNING:
When carrying out the following operations, do not rely on the jack used to lift the tractor.

1. Use a jack with suitable lifting capacity to raise the front of the tractor. Chock the front axle beam using axle stands or suitable blocks of wood.
2. Take out the three bolts which fix each telescopic arm to the axle beam and remove the bolt locking the telescopic ram.
3. Extend the telescopic arms to obtain the desired track width, then refit the arms and tighten the bolts to a torque of (260 Nm (192 lbf ft))
4. Adjust the steering rams to correspond to the selected track width. Refit the screws and nuts and tighten to a torque of (70 Nm (52 lbf ft))

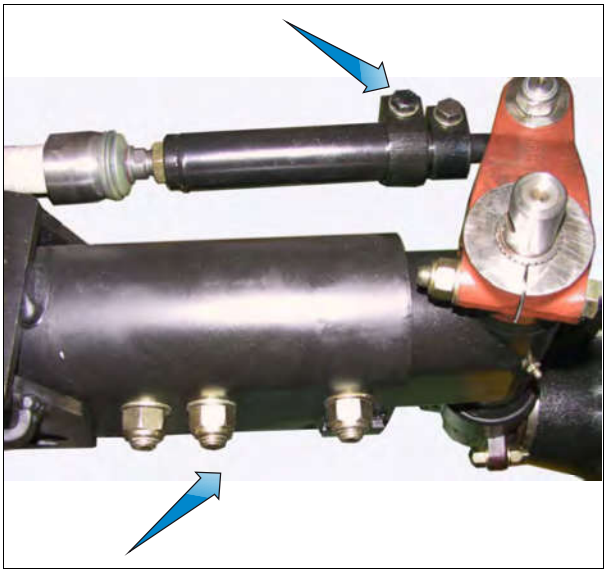


Fig. 1. I017943

4-wheel drive

The track widths available depend on the type of axle beam and the tire dimensions.

3

Fixed steel rims

2 track widths can be obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

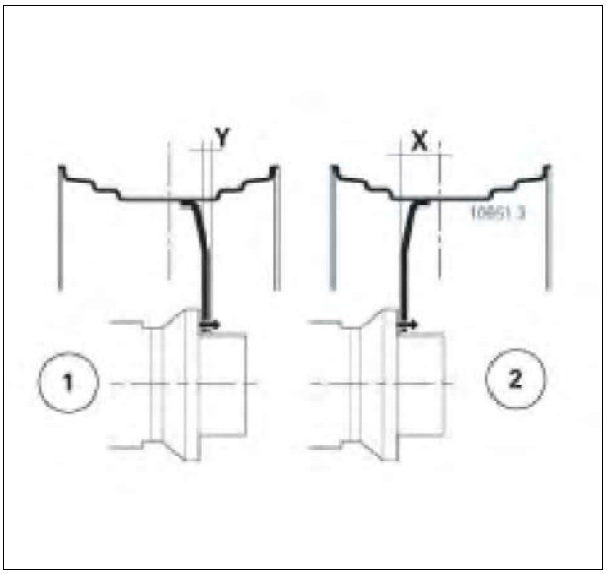


Fig. 2. I006024

Theoretical track widths, fixed steel rim Offset (X) = 23 mm (0.9 in) to 30 mm (1.2 in) Disc thickness (Y) = 10 mm (0,39 in)		
Rim disc position	**74657475**	**7480**
Disc facing inwards (1)	min. 1740 mm (68.6 in)	min. 1734 mm (68.3 in)
Disc facing outwards (2)	max. 1884 mm (74.2 in)	max. 1860 mm (73.3 in)

NOTE: *With narrow track widths and with certain tire fittings, the wheels may touch the hood when turning at maximum lock. The axle is fitted in the factory to be able to withstand tractor transport.*

To prevent this, the hubs are fitted with threaded stops, which can be adjusted to limit the steering angle.
To adjust these stops, *see §3.15.3, page 166*

Fig. 3. I005718

3.15.3 Adjusting the 4WD front axle stops

T001942

General

Check and, if necessary, adjust the front axle stops each time the front track width is altered or following a wheel and/or tire change.

Oscillation stop: These stops cannot be adjusted.

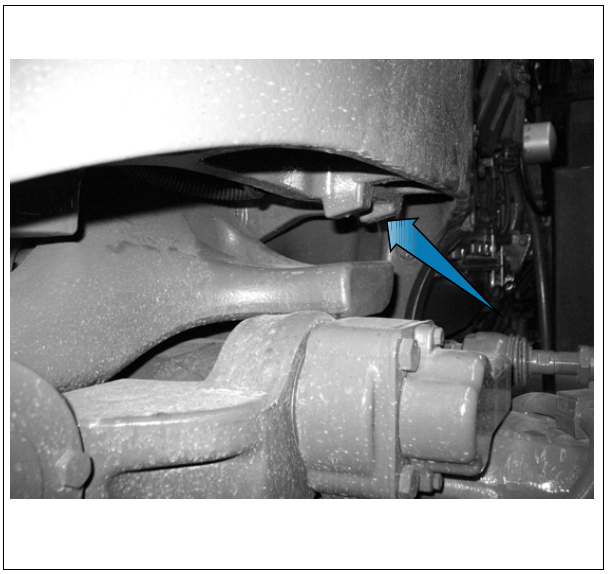


Fig. 4. I022017

Steering angle adjustment screw.
(1) Front adjustment screw
(2) Rear adjustment screw

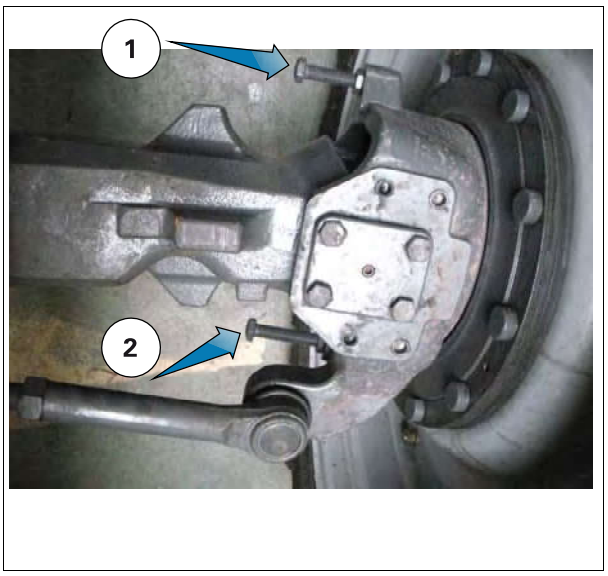


Fig. 5. I011956

Steering angle adjustment procedure

NOTE: *The front axles are intended for a maximum steering angle of 55°.*

1. Place the front of the tractor on a support so that the front axle can swing freely over the entire length of its high and low travel.
2. Lock the wheels to the right and swing the front axle until it touches the right-hand oscillation stop -, move the axle over the entire length of its oscillation travel so that you can adjust the rear right-hand stop and obtain a minimum clearance of 40 mm (1.6 in) between the tire and nearest point of the immediate environment (e.g.,: body/attachments).
   NOTE: *Screw the stop diagonally opposite (front left-hand) before adjusting the rear right-hand stop to avoid mechanical stress that could prevent the adjustment dimension from being obtained.*
3. Bring the front-left hand stop into contact with the front axle and tighten the locknut.
4. Repeat steps 2 and 3 for the opposite side (rear left-hand and front right-hand).
5. Swing the axle right then left to check that no settings have moved, then definitively tighten the stops.

Toe-in check

The toe-in check requires special tools; please consult your dealer if a problem occurs.

3.15.4 Adjusting the rear wheel track width

T008015

The various track widths are obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

NOTE: *The minimum track widths are theoretical and vary according to tire dimension. Ensure a sufficient gap remains between the tires and the inside of the fenders (50 mm (2.0 in) minimum).*

If the wheels are reversed they must be transferred to the opposite side of the tractor.

When refitting, tighten the nuts progressively to the correct torque in accordance with the table, *** 'Rear axle' on page 262 ***.

Flanged shaft, steel rims			
Offset X = 75 mm (3.0 in) Thickness of rim Y = 15 mm (0.6 in)			
	Distance between flanges	**1**	**2**
Version HA 130 (flanged shaft)	1716 mm (67.6 in)	1790 mm (70.5 in)	2216 mm (87.3 in)(1)*
Version HA 130 (short smooth shaft)	1868 mm (73.6 in) to 2276 mm (89.7 in)		
Version HA 130 (long smooth shaft)	1868 mm (118.2 in) to 2868 mm (113.0 in)		

1. Using two 25 mm (1.0 in) spacers

Tightening torque: A, disc on hub, *** 'Rear axle' on page 262 ***

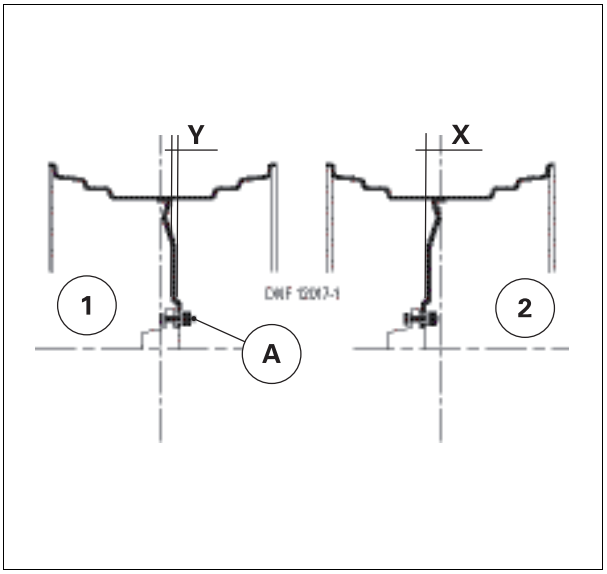


Fig. 6. I005750

3.15.5 Changing wheel positions

T001553

Adjustment of wheel position on the right-hand shaft (half-tapered hubs)

1. Raise the rear of the tractor to lift the wheels from the ground and carefully chock the vehicle.
2. Loosen the screws (1) of the half-tapered hubs by approximately three turns.
3. Remove the 4 screws (2) and fit into the holes (3).
4. Tighten them alternately until the half-tapered hubs are free of the fixed hub.
5. Adjust the position of the wheel on the shaft according to the required track width.
6. Fit the screws (3) back into the holes (2). Retighten the 6 screws (1) and (2), taking care to align the two half tapers.
7. Tighten the screws alternately to the correct torque on each half taper *see §5.11.3, page 262*.

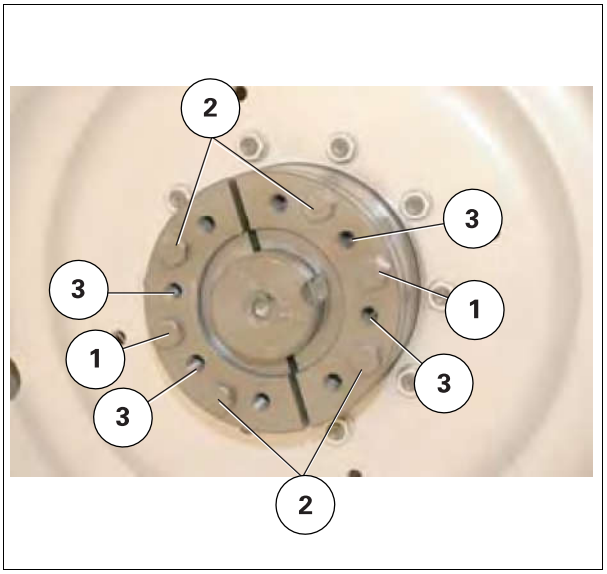


Fig. 7. I006292

3.15.6 Tires

T001305

Agricultural tire markings

(1) Flange size in inches or millimetres
(2) Type of manufacture (e.g., Radial)
(3) Nominal rim diameter in inches
(4) Side/flange size ratio
(5) Load capacity index per tire 121 = 1450 kg (3197 lb); 153 = 3650 kg (8047 lb)
(6) Speed symbol A8 = 40 km/h (25 mile/h)
(7) 1,6 bar (23 psi)Reference pressure:
(8) Tubeless: Without inner tube

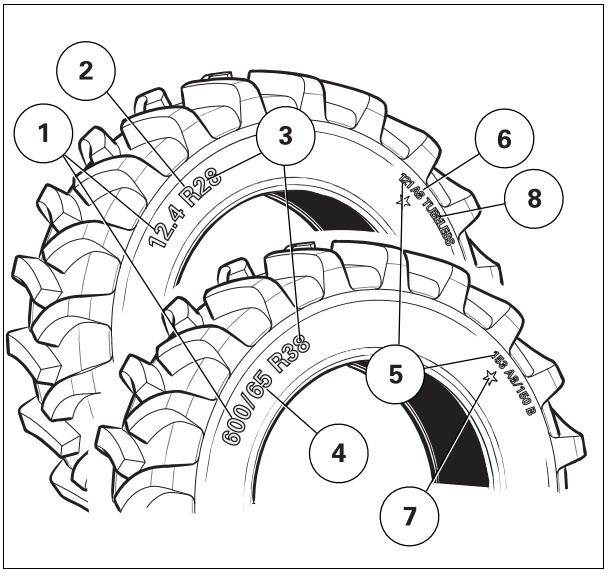


Fig. 8. I008034

3.15.7 Dual wheels

T001014

In general, dual wheels should be used only for reducing soil compaction work (surface treatment work).

When selecting dual wheels that reuse the rims fitted as standard in the factory with a disc thickness less than 16 mm (0.6 in), you must obtain additional wheels with a thickness equal to or greater than 16 mm (0.6 in) and fit them on the inside and then lock them together with the standard rims on the outside.

IMPORTANT: *Use a tube type dual wheel kit, which is fitted to the hubs and not to the rims (kit available from your dealer).*

The following four criteria must be taken into account when selecting the correct dual rear wheels:

1. Soil conditions
2. Traction (narrow wheels)
3. Overall dimensions
4. Type of tire

IMPORTANT: *The wrong choice of dual wheels has a direct influence on the mechanical components and the wheel rims of the tractor. Avoid using dual wheels for intensive pulling, even for short periods (hauling out a tractor stuck in the mud, etc.).*

NOTE: *It is preferable to use wide tires or low-pressure tires instead of dual wheels.*

3

Use of dual wheels

– Set the inner wheels to minimum track (*fig. 9*).
  NOTE: *The use of very wide tires on dual wheels is not recommended.*
  The most efficient dual wheels arrangement uses two tires of the same specifications.
– When fitting dual wheels with tires of different widths, the wider wheel must be fitted inside.
– When fitting dual wheels with tires of the same width, the tire which is more worn must be fitted on the outside.
– The tire pressure of the outer tires should be slightly reduced by approximately 0,2 bar (3 psi).
– In clay soil, this distance should be increased in proportion to the tire size.

IMPORTANT: *Dual wheels do not double the load capacity of the tractor.*

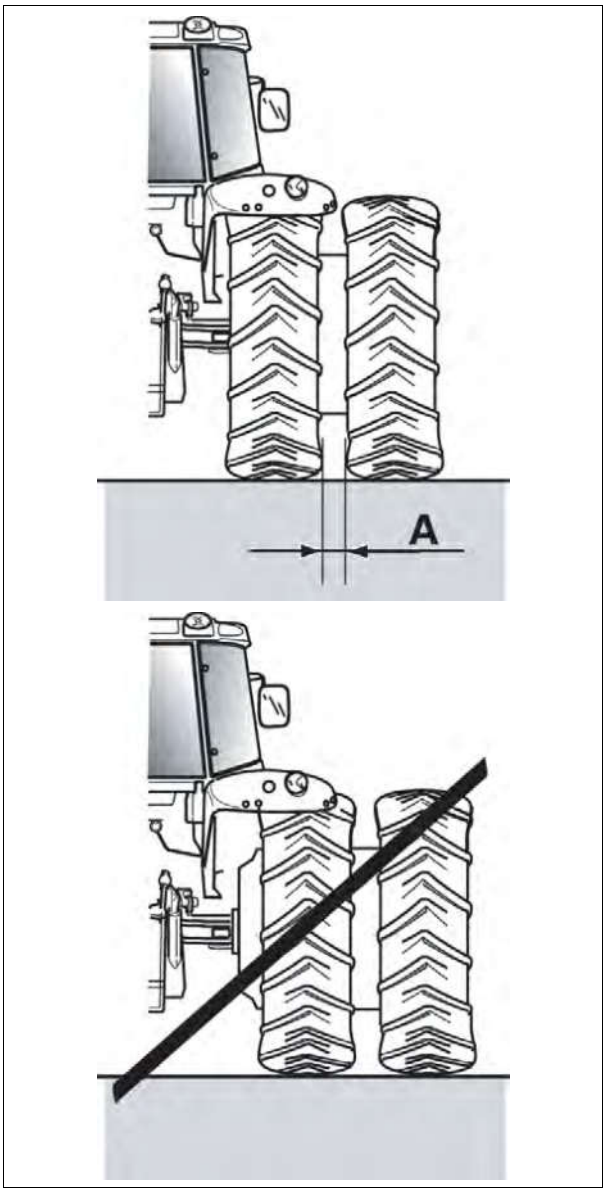


Fig. 9. I003510

3.15.8 Tire pressures

T001547

Check the tire pressures every 100 hours. Tire pressures vary according to make, load and speed as well as to the type of work being carried out.
Refer to the inflation tables issued by the tire manufacturers.

IMPORTANT: *The relationship between the sizes of the front and rear tires on 4-wheel drive tractors must be maintained.*

NOTE: *For dual wheels, the tire pressure of the outer tires should be slightly reduced by approximately 0,2 bar (3 psi).*

Front tires

Dimensions	Pressure under load					
	Kleber Super 8 - 9		Michelin		Goodyear	
	Max.	Min.	Max.	Min.	Max.	Min.
11.2R28	2,1 bar (30 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	1,6 bar (23 psi)	0,6 bar (9 psi)
13.6R28	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
14.9R24	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
14.9R34	-	-	1,9 bar (28 psi)	0,4 bar (6 psi)	1,6 bar (23 psi)	0,6 bar (9 psi)
14.9R28	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
16.9R24	2,1 bar (30 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	1,6 bar (23 psi)	0,6 bar (9 psi)
16.9R28	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
16.9R30	2,1 bar (30 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	1,6 bar (23 psi)	0,6 bar (9 psi)
320-85R34	-	-	-	-	-	-
380-70R28	1,6 bar (23 psi)	0,6 bar (9 psi)	2,7 bar (39 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
380-85R30	2,1 bar (30 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	-	-
440-65R28	-	-	1,4 bar (20 psi)	0,4 bar (6 psi)	1,2 bar (17 psi)	0,6 bar (9 psi)
420-70R24	1,6 bar (23 psi)	0,6 bar (9 psi)	-	-	2 bar (29 psi)	0,6 bar (9 psi)
420-70R28	1,6 bar (23 psi)	0,6 bar (9 psi)	-	-	1,2 bar (17 psi)	0,6 bar (9 psi)
480-65R28	-	-	1,4 bar (20 psi)	0,4 bar (6 psi)	1,2 bar (17 psi)	0,6 bar (9 psi)
480-70R28	1,6 bar (23 psi)	0,6 bar (9 psi)	-	-	2 bar (29 psi)	0,6 bar (9 psi)
480-70R30	2,1 bar (30 psi)	0,4 bar (6 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2,4 bar (35 psi)	0,6 bar (9 psi)
540-65R24	2,1 bar (30 psi)	0,4 bar (6 psi)	1,8 bar (26 psi)	0,4 bar (6 psi)	1,5 bar (22 psi)	0,6 bar (9 psi)
540-65R30	2,4 bar (35 psi)	0,4 bar (6 psi)	2,4 bar (35 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
600-65-R28	2,1 bar (30 psi)	0,4 bar (6 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)

Rear tires

Dimensions	Pressure under load					
	Kleber Super 8 - 9		Michelin		Goodyear	
	Max.	Min.	Max.	Min.	Max.	Min.
13.6R38	2,1 bar (30 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
14.9R46	-	-	2,4 bar (35 psi)	0,4 bar (6 psi)	-	-
16.9R30	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
16.9R34	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
16.9R38	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
18.4R30	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
18.4R34	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
18.4R38	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	1,6 bar (23 psi)	0,6 bar (9 psi)
18.4R42	-	-	2,1 bar (30 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
20.8R38	1,6 bar (23 psi)	0,6 bar (9 psi)	1,9 bar (28 psi)	0,5 bar (7 psi)	1,2 bar (17 psi)	0,6 bar (9 psi)
320-85R50	-	-	-	-	-	-
420-80R46	-	-	2,7 bar (39 psi)	0,4 bar (6 psi)	-	-
480-70R34	2,1 bar (30 psi)	0,4 bar (6 psi)	2,7 bar (39 psi)	1 bar (15 psi)	2 bar (29 psi)	0,6 bar (9 psi)
480-70R38	2,1 bar (30 psi)	0,4 bar (6 psi)	-	-	2 bar (29 psi)	0,6 bar (9 psi)
480-80R42	-	-	2,1 bar (30 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
480-80R46	-	-	2,7 bar (39 psi)	0,4 bar (6 psi)	-	-
520-70R34	1,6 bar (23 psi)	0,4 bar (6 psi)	-	-	2 bar (29 psi)	0,6 bar (9 psi)
520-70R38	1,6 bar (23 psi)	0,4 bar (6 psi)	1,4 bar (20 psi)	0,4 bar (6 psi)	1,2 bar (17 psi)	0,6 bar (9 psi)
540-65R34	2,1 bar (30 psi)	0,4 bar (6 psi)	1,8 bar (26 psi)	0,4 bar (6 psi)	2 bar (29.01 l bf/in² (PSI))	0,6 bar (9 psi)
540-65R38	1,6 bar (23 psi)	0,4 bar (6 psi)	1,8 bar (26 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
580-70R38	2,1 bar (30 psi)	0,4 bar (6 psi)	-	-	2 bar (29 psi)	0,6 bar (9 psi)
600-65R34	2,1 bar (30 psi)	0,4 bar (6 psi)	1,8 bar (26 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)
600-65R38	2,1 bar (30 psi)	0,4 bar (6 psi)	1,4 bar (20 psi)	0,4 bar (6 psi)	1,2 bar (17 psi)	0,6 bar (9 psi)
650-65R38	2,1 bar (30 psi)	0,4 bar (6 psi)	1,8 bar (26 psi)	0,4 bar (6 psi)	2 bar (29 psi)	0,6 bar (9 psi)

Dimensions	Pressure under load					
	Kleber Super 8 - 9		Michelin		Goodyear	
	Max.	Min.	Max.	Min.	Max.	Min.
650-75R38	2,4 bar (35 psi)	0,4 bar (6 psi)	-	-	-	-
650-85R38	2,4 bar (35 psi)	0,4 bar (6 psi)	-	-	3 bar (44 psi)	0,6 bar (9 psi)
710-70R38	2,1 bar (30 psi)	0,4 bar (6 psi)	1,9 bar (28 psi)	0,4 bar (6 psi)	3 bar (44 psi)	0,6 bar (9 psi)

3.15.9 Radial loads and standard inflation pressures

T001550

Table of loads and inflation pressures for tires with a radial structure

Tire dimension	psi kPa	12 80	14 100	16 110	18 120	20 140	22 150	23 160	26 180	28 190	30 210
	PR symbol				*			**			***
14.9R28	lbs kg	2630 1195	2880 1305	3120 1415	3300 1500	3560 1615	3760 1705	3960 1800	4140 1880	4320 1960	4540 2060
14.9R30	lbs kg	2720 1235	2970 1345	3220 1460	3420 1550	3660 1660	3880 1760	4080 1850	4280 1940	4460 2025	4680 2120
14.9R46	lbs kg	3420 1150	3740 1700	3960 1800	4300 1950	4540 2060	4800 2180	5080 2300	5360 2430	5580 2500	5840 2650
16.9R28	lbs kg	3200 1450	3500 1590	3780 1715	4080 1850	4320 1960	4560 2070	4940 2240	5020 2275	5240 2375	5520 2500
18.4R38	lbs kg	4440 2015	4860 2205	5260 2385	5680 2575	5980 2715	6350 2880	6600 3000	7000 3175	7300 3310	7600 3450
18.4R42	lbs kg	4680 2125	5120 2320	5540 2515	6000 2725	6300 2860	6650 3015	6950 3150	7350 3335	7700 3495	8050 3650

NOTE: ** Consult the tire manufacturer for loads lower than a pressure of 12 psi (80 kPa).*

1. The figures in bold represent the maximum load for the symbol indicated (*, **, ***).
2. For transporting purposes, the tire inflation pressure can be increased by 30 psi (210 kPa) (consult the tire manufacturer to obtain this minimum transport pressure). This increased tire inflation pressure must be decreased to the nominal value before the tractor is removed from the transport vehicle.
3. For dual wheels, the loads to the tires must be reduced. Multiply the figures in the above table by 0.88.
4. For the above tires, intended for a cyclic load without long periods of use at high torque nor at speeds exceeding 8 km/h (5 mile/h (mph)), the above values can be increased by 70% (inflation pressure is increased by 40 KPa (6psi)).
5. For FIELD WORK at high torque (ploughing for example), the basic loads can be increased by 7% PROVIDED THAT THE TRACTOR TRANSPORT SPEED IS LESS THAN32 KM/H (20 mile/h (mph)).
6. For transport purposes and during operations that do not require long periods of high torque, the following load limits at variable speeds must be applied without changing tire inflation pressure.

IMPORTANT: *Because the size relationship between the front and rear tires is very important on 4WD tractors, only compatible sizes should be used.*

Maximum speed	% difference in relation to the above values
16 km/h (10 mile/h (mph))	+34%

Maximum speed	% difference in relation to the above values
24 km/h (15 mile/h (mph))	+11%
32 km/h (20 mile/h (mph))	+7%
40 km/h (25 mile/h (mph))	None

Code	Tire type
R-1	Drive wheel, standard type tire tread.
R-2	Plantations (cane and rice), drive wheel with deep tread pattern
R-3	Traction wheel, shallow tire tread.
R-4	Industrial type tractor, drive wheel, intermediate tire tread.

3.15.10 Ballasting the tractor

T001548

General

Under certain conditions the tractor may need ballasting to increase the traction power of the drawbar and reduce excessive wheel slip. This additional weight can be obtained by adding a calcium chloride solution to the tires, fitting cast iron counter-weights to the wheels, or using a removable front ballasting weight. The weight required depends on the condition of the ground and the work to be undertaken.

The optimum load is generally set at 60 kg/ PTO hp, but the total tractor weight can be increased to a maximum of 72.5 kg/PTO hp. Your dealer will inform you of the ballasting specifications of your tractor in order to optimize performance. If the ballasting is excessive, the tires will leave visible tread marks (1). If the ballasting is insufficient, the tires will leave blurred marks (3) due to wheel slip. Tractors with a 4WD front axle operate most effectively when wheel slip is between 8% and 12%.

Ensure that the tractor ballasting does not exceed the level required for adequate traction. The total load on each wheel must not exceed the load levels advised by tire manufacturers and indicated on the tires.

It is also recommended to take off additional weights for work requiring less traction, for example tilling, planting, etc. Carrying superfluous weight increases soil compaction, uses more fuel, and decreases the life span of tires, bearings, gears, etc.

When a weight is added to the rear wheels, the tractive force increases and tends to reduce the weight on the front wheels.

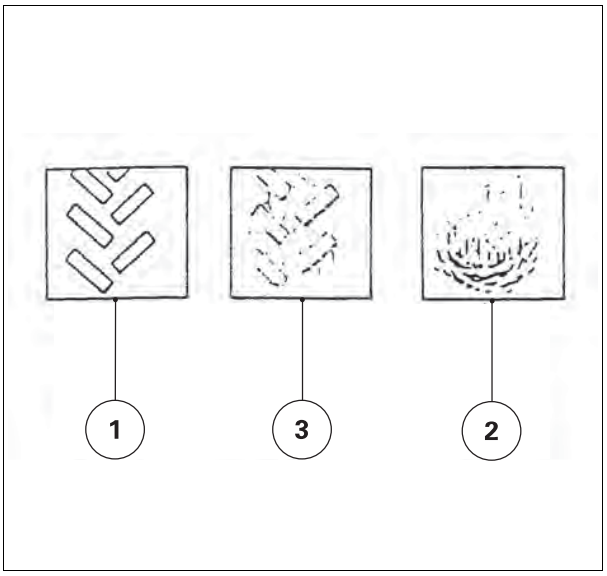


Fig. 10. I005762

WARNING:

Ensure that the tractor always has sufficient weight at the front to remain stable and keep control of the steering.

Procedure if there is a power discrepancy/wheel bounce

The ideal ballast distribution on 4WD tractors is 40% at the front and 60% at the rear.

If there is a power discrepancy/wheel bounce on tractors with a 4WD front axle, use the following procedure, carrying out a field test after each stage:

1. Distribute the ballast as required (40% to front, 60% to rear).
2. Adjust the total tractor weight, maintaining the 40/60 distribution, until the wheels leave marks similar to those in diagram (2).
3. Gradually reduce the rear tire inflation pressure by increments of 2 psi.
4. Gradually reduce the front tire inflation pressure by increments of 2 psi.
5. Redistribute the ballast (35% to front and 65% to rear) by removing the tractor front weight.
   NOTE: *Ballast should not be added to the rear axle when redistributing the weight unless all additional weights have been removed from the front axle.*

3.15.11 Liquid ballasting

T001016

Steering and braking performance can be considerably affected by attaching implements. To maintain the required ground contact pressure, ensure that the tractor is ballasted correctly. Advice is available from your Dealer.

Tires with inner tube

These tires can be inflated with water mixed with calcium chloride. Refer to your dealer.

WARNING:

When preparing a calcium chloride solution for ballasting the tractor tires with water, NEVER pour the water onto the calcium chloride as this may produce chlorine, which is a toxic and explosive gas. This can be avoided by slowly adding calcium chloride flakes to the water and stirring until they are dissolved.

Tires without inner tubes (tubeless):

Use a monoethylene glycol-based liquid containing corrosion inhibiting agents other than nitrites (Na No2). Example: Agrilest, Castrol, Lestagel, Igol, etc.

3

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4.1 Service guide

4.1.1 Service guide

T008033

Interpretation of the table
Initial 50-hour service marked °°: this maintenance instruction is to be carried out by your dealer as part of the 50-hour service defined in the Service Record Book.
Intervals marked °: regular service intervals marked ° are to be carried out at regular intervals (for example: every day, every 50 hours, every 400 hours etc.).
Intervals marked *: For variable intervals marked *, refer to the relevant chapter in this book.

SERVICE GUIDE	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
General						
Lubricate all points with grease or oil as specified in the Operator Instruction Book.	°°	*				
Check the accumulator pressures.	Once a year					
Check that all guards are in place and that safety signs are secure and legible.	°°	°				
Road test the tractor to check all instruments and systems for correct operation.	°°	°				
Road test the tractor to check the steering and brakes for correct operation.	°°	°				
After the road test, check for any leaks of oil, fuel or coolant.	°°	°				
Enquire if the operator has any operational difficulties and correct or demonstrate the solution as necessary.	°°	°				
Complete the owner's Service Record Book.	°°	°				
Cab						
Check and fill up the windshield washer bottle.						°
Clean the cab air filter element.		°				
Change the cab filter elements.				°		
Check the air conditioning system for correct operation.	°°	°				
Check the torque of the cab/safety frame mounting bolts.	°°	°				
Bleed the water from the suspended cab compressed air system.	Every two weeks					
Replace the cab shock absorbers.	4800 hrs					
Engine						
Check engine oil level						°
Change the engine oil(2).		°				
Change the engine oil filter(2).		°				
Change the fuel prefilter(2).	°°	°				
Change the fuel filter(2).	°°	°				
Bleed the water from the fuel prefilter		*				
Change the filter element of the fuel/water separation centrifugal prefilter(2).	°°	°				
Drain any water from the fuel tank				°		

4

SERVICE GUIDE	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
Check/adjust the valve clearance, replace the cover seal			° the first time		°	
Check the operation of the injectors.					°	
Check/clean the dry air filter elements.						°
Change the dry air filter elements.				°		
Check the radiator coolant level.						°
Drain, flush and refill the radiator with coolant.				°		
Check/clean the radiator/cooler fins.						°
Check/clean the air conditioning condenser.						°
Change the air conditioning dryer.				°		
Check the tension and condition of the alternator/fan/air conditioning compressor belts.	°°	°				
Change the alternator/fan/air conditioning compressor belts.				°		
Check the idle speed and fuel cut-off mechanism.		°				
Transmission and auxiliary hydraulics						
Check the transmission oil level.						°
Check the auxiliary hydraulics oil level.						°
Change the rear axle/transmission oil.					°(1	
Change the transmission suction strainer.					°(1	
Change the transmission high-pressure filter element.	°°	° the first time	-	°		
Check the oil in the rear final drive units.		°				
Change the oil in the rear final drive units.					°	
Change the auxiliary hydraulic system return filter.	°°	°				
Change the auxiliary hydraulic system oil.				°		
Change the auxiliary hydraulic system breather.				°		
Check/lubricate the linkage shaft and only fill up if not properly sealed.	°°				°	
Check the clutch pedal and transmission for correct operation.	°°	°				
Check the clutch fluid level.	°°	°				
Change the clutch fluid, bleed the system.					°	
Brakes						
Check the condition of the brake pipes.	°°			°		
Bleed the brakes/pistons.				°		
Check the adjustment of the emergency hand brake.	°°	°				
Check the trailer brake valve for correct operation.	°°			°		
Check the operation of the ParkLock.						°
Front axle and steering						

SERVICE GUIDE	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
Check the oil level in the front axle and final drives (4WD).		○				
Change the oil in the front axle and final drives (4WD).	○○		○			
Check the front wheel hubs/steering pivots.	○○	Once a month				
Lubricate the steering pivots/suspended front axle.	Once a week					
Lubricate the driveshaft/universal joints (4WD).	○○	○				
Check the steering and wheel alignment (including tire wear and damage).				○		
Calibrate the suspended front axle.				○		
Power take-off						
Check the PTO for correct operation.	○○	○				
Change the ZUIDBERG front PTO oil.	○○	○				
Clean the "ZUIDBERG" front PTO strainer.	○○	○				
Linkage						
Check the auto-hitch for correct operation.	○○			○		
Electrical equipment						
Check the condition of the battery and the electrolyte level.	○○	○				
Check the tightness of the battery connections and battery safety.	○○	○				
Check all the neutral start switches for correct operation.	○○	○				
Check all the, indicator lights, instruments, and acoustic alarms for correct operation.	○○	○				
Check all lights for correct operation and adjustment.	○○	○				
Check all electrically powered devices (heater/fan, radio, windshield wipers, etc.) for correct operation.	○○	○				
Check all electronically controlled systems for correct operation.	○○	○				
Wheels and tires						
Check the torque of all wheel and rim nuts and bolts.						○

1. NA market: When AGCO Permatran 821XL 10W30 oil is used, the intervals must be reduced to 1000 hours.
2. If biodiesel fuel is used, refer to the relevant chapter (*see §4.3.17, page 198*)

4.2 Cab

4.2.1 Air-conditioning system: Condenser

T001570

Clean regularly with compressed air.

Fig. 1. I005507

4.2.2 Air-conditioning system: Checking the air conditioning system

T001125

Frequency

DANGER:

In the event of a leak, wear safety goggles. Escaping refrigerant gas or liquid can cause severe injuries to the eyes. The R134a refrigerant used in the installation gives off a toxic gas if it comes into contact with a flame.

WARNING:

Do not disconnect any part of the air conditioning system. Consult your dealer or agent if a fault occurs.

1. Operate the air conditioning system for a few minutes every week to keep the whole system in good condition and to lubricate the seals.
2. Add charge to the air conditioning system every year at the start of summer (consult your dealer).

4.2.3 Air-conditioning system: dryer

T001826

Frequency

Replace the dryer every 1200 hours (consult your dealer).

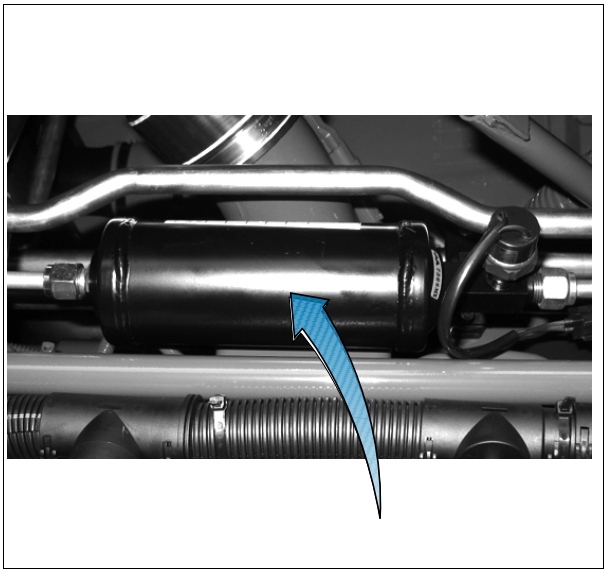


Fig. 2. I020124

4.2.4 Cab air filter

T001571

Frequency

Clean the cab air filter every 400 hours, or more frequently, if necessary.
Change the cab filter every 1200 hours.

Procedure

WARNING:

The air filter element does not provide protection from chemical products. Please ask your dealer for information concerning the availability of the specific particle filter.

1. To gain access to the cab air filter, open the hatch on the left-hand side of the cab roof.
2. Turn the handle and lift out the filter element.
3. Clean the filter by blowing it with compressed air.
4. Before refitting the filter, wipe out the compartment with a damp cloth to remove dust.

Fig. 3. I005508

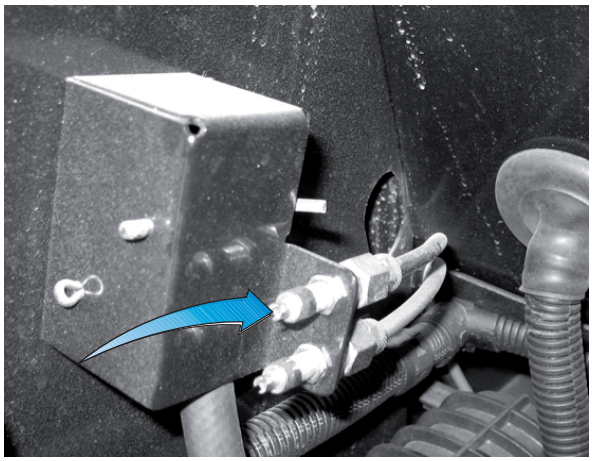
4.2.5 Cab suspension

T001572

Regularly (once every other week) bleed the water from the air system (black hose) of the cab pneumatic shock absorbers by pressing the valve *fig. 4* located beneath the arch on the rear left of the cab.

Replace the compressor filter located beneath the cab every 4800 hours (consult your dealer).

Replace mechanical shock absorbers every 4800 hours (consult your dealer).



I022469

Fig. 4. I005813

4.2.6 ROPS or cab attachment

T001031

Frequency

The cab or arch forms an integral part of the Roll Over Protection Structure (ROPS) and must be attached correctly in order to work effectively.
Ask your dealer or agent to check the tightness of the ROPS or cab attachment bolts every 400 hours.

CAUTION:

The cab or ROPS complies with all international safety standards. It must never be drilled or modified to enable installation of accessories or implements. Welding any item to the cab or ROPS or repairing the cab or ROPS is not permitted. If any such operation is carried out, the cab or ROPS may no longer comply with the required standards. Only genuine parts may be used, which must be fitted by your dealer or agent.

4.2.7 Windshield washer

T001032

The windshield washer bottle is located between the tractor rear fenders.

Fig. 5. I012206

Frequency

Check to make sure that there is fluid in the tank every day and fill up if required.

IMPORTANT: *Use a fluid suitable for the lowest temperatures encountered to avoid any damage from freezing.*

4.2.8 Hinge and lock lubrication

T001033

Lubricate the following with liquid paraffin every 400 hours:

- the door hinges
- the door locks
- the window locks

4.3 Engine

4.3.1 Recommended products

T001199

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Oil characteristics

Engine oil	Type of oil	Temperature range
All year round	15W40	-10 °C (14 °F) and above
Winter conditions	10W30	-30 °C (-22 °F) to 20 °C (68 °F)
Extreme cold weather conditions	5W30	20 °C (68 °F)and below

	Volume/reference available from parts department				
Volume	0,94 l (0.2 gal (US))	9,45 l (2.5 gal (US))	18,9 l (5.0 gal (US))	113,4 l (30.0 gal (US))	207,9 l (54.9 gal (US))
AGCO 5W30	7901 5705	7901 5703	N/A	N/A	N/A
AGCO 10W30	7901 4694	7901 4695	7901 4696	7901 4697	7901 4698
AGCO 15W30	7901 4678	7901 4680	7901 4681	7901 4682	7901 4683
AGCO 821XL	7901 4711	7901 4712	7901 4713	7901 4714	7901 4715

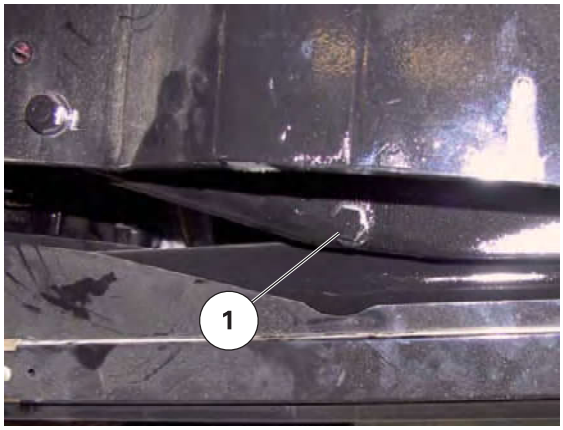
Coolant

Antifreeze: Permanent, ethylene/glycol, complying with standard specifications ATSM D3306 (USA) or BS 6580-1992 (Europe/UK) or AS 2108-1977 (Australia) for SISU engines.

4.3.2 6-cylinder SisuDiesel engine

T001531

(1) Engine oil drain plug



I005558

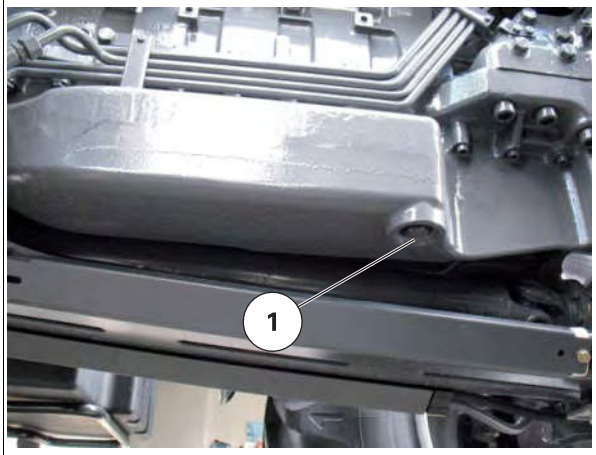


Fig. 1. I017764

(2) Engine oil filler plug

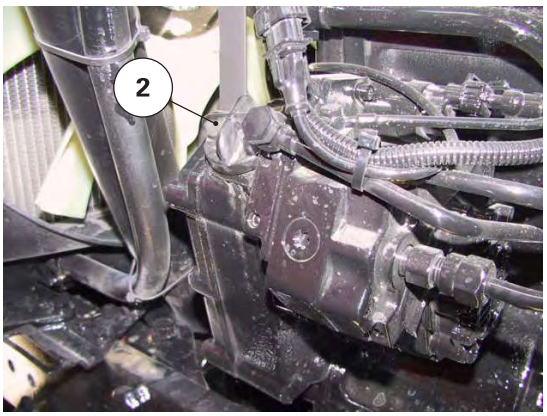


Fig. 2. I005559

(3) Engine oil dipstick
(4) Oil filter
(5) Fuel prefilter
(6) Fuel filter

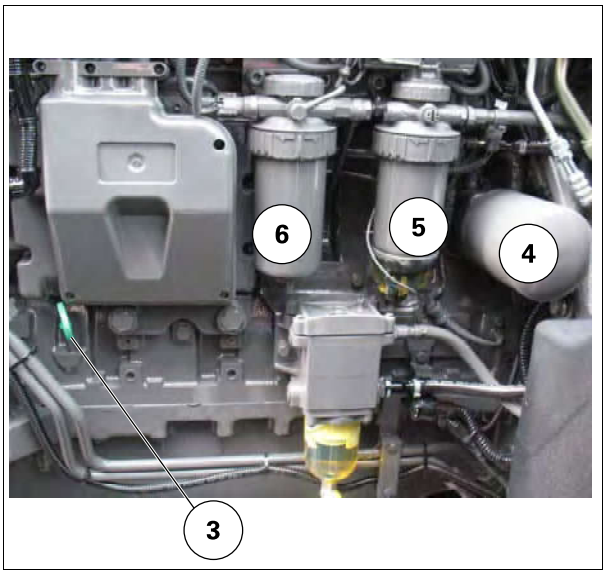


Fig. 3. I017763

4.3.3 Engine oil level check

T001562

Frequency
Check engine oil level daily.

Procedure
NOTE: *This operation is to be carried out when the engine is cold.*

NOTE:
To avoid unnecessarily heavy oil consumption:
- *Do not exceed the MAX mark on the dipstick.*
- *Do not refill until the level reaches the MIN mark on the dipstick.*

1. Stand the tractor on level ground, with the front axle suspension disengaged. Stop the engine.
2. Check the oil level every day using the dipstick.
3. Fill up with oil if necessary.

4.3.4 Draining the engine oil

T002010

Frequency
Drain the engine oil every 400 hours maximum.
In difficult working conditions, the oil may need changing more frequently (every 200 hours for example).

Procedure
1. Drain the oil when the engine is warm.
2. Stand the tractor on level ground, with the front axle deactivated. Stop the engine.
3. Undo and remove the plug(s) from the engine sump.
   NOTE: *If there are two drain plugs, it is recommended to undo them to achieve more efficient drainage as there is a separating panel that traps the oil on each side of the sump.*
4. ***IMPORTANT:*** *Do not dispose of the oil in the environment. Always store oil in suitable containers so that it can be collected and processed by specialist organizations.*

   Collect the used oil in a container of sufficient size.
5. Refit and tighten the drain plug(s) (torque: 35 Nm (26 lbf ft)).
6. Refill with a recommended oil to the "max" mark.
   NOTE: *Allow time for the oil to settle in the sump before rechecking the level.*
7. Start the engine and check that there are no leaks from the drain plug(s).

4.3.5 Replacing the engine oil filter

T001423

Frequency
Change the engine oil filter every 400 hours

Procedure
1. With the engine switched off, drain the engine oil before replacing the oil filter (*see §4.3.4, page 188*).
2. Unscrew and discard the complete filter and the worn seal.
3. Fill the new filter slowly with clean oil.
4. Smear a few drops of clean engine oil on the new seal ring, then place the ring in the housing on top of the new filter.
5. Screw on the filter until the seal ring touches the filter head, then tighten it a further half-turn by hand only (do not overtighten).
6. Refill with the recommended type of engine oil.
7. ***IMPORTANT:*** *When starting the engine after changing the oil and filter, avoid depressing the throttle pedal and let the engine run at idle speed for several minutes with no load until oil pressure is obtained. Wait for the 5 bar (73 psi) indicator light to go out.*

   Recheck the oil level and fill up if necessary.
8. Restart the engine and check that there are no leaks.

4.3.6 FUEL SYSTEM Fuel prefilter

T001426

Draining the water: Frequency
Every 100 hours or once a week.

Draining the water: Procedure
1. Place a container underneath the fuel prefilter.
2. Drain the water by opening the valve at the base of the prefilter. Collect the water and dispose of properly in accordance with directives on environmental protection.
3. Re-close the valve and then bleed the system.

Replacing the filter element: Frequency
Replace the filter element every 400 hours

Replacing the filter element: Procedure
IMPORTANT: *Frequently clean the fuel prefilter bowl. Do not puncture the fuel prefilter.*

NOTE: *To avoid water condensation in the fuel tank, refill with fuel at the end of the working day.*
Ensure that a spare prefilter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

1. Drain the prefilter.
2. Remove and discard the filter element(s).
3. Refit a new element.
4. Bleed the system.

4.3.7 Fuel system: Fuel filter

T001425

Frequency
Replace the filter element every 400 hours

Procedure
1. Drain the filter.
2. Remove and discard the filter element(s).
3. Refit a new element.
4. Bleed the system (*see §4.3.8, page 190*).

4.3.8 FUEL SYSTEM bleeding

T001424

Procedure

To ensure correct operation of the engine, the fuel system must be in perfect condition and free of air.

1. Switch on the ignition. The electric pump automatically bleeds the system.
2. Start up and allow the engine to run at idle for several minutes.
   NOTE: *Never activate the starter for more than 30 seconds in one go to avoid overheating the starter and discharging the battery.*
3. Check that there are no leaks
4. Repeat the operation if required.

4.3.9 Fuel system: Water filter (optional)

T001719

General

This filter prefilters the particles contained in the fuel and is fitted on the left-hand side of the engine.

Self-cleaning is necessary if you notice the internal paper element is starting to become blocked. The following symptoms indicate a blockage:

– Loss of engine power
– Black smoke from the exhaust
– Display of error code 97 on the DOT Matrix screen.

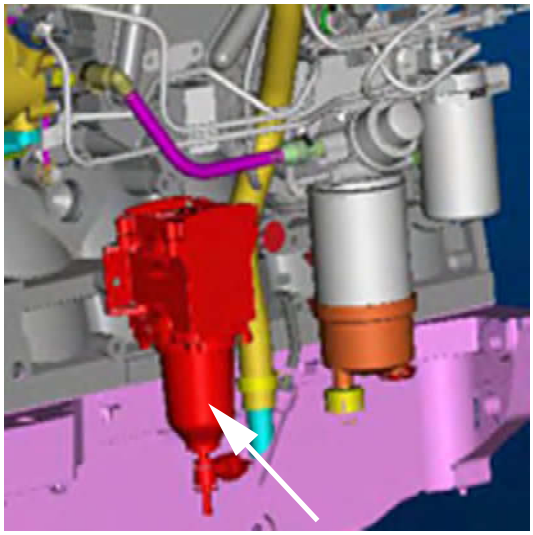


Fig. 4. I005570

Self-cleaning

1. Stop the engine.
2. Open the bleed screw (on the top of the filter).

Fig. 5. I005576

3. Open the drain valve on the transparent container (1) *fig. 6* or loosen the bleed screw (3) (depending on model).
   - atmospheric pressure enters the filter
   - particles and water droplets are detached from the paper element
   - the particles fall to the base of the container via gravity
4. Close the drain valve by pushing and then turning to the left (2) *fig. 6* or retighten the bleed screw (3) (depending on model).
   - the clean fuel above the cartridge rinses the element and carries the fine particles and droplets to the transparent container
   - drain the fuel to flush out the particles and water in the paper element and the transparent container

Fig. 6. I005575

5. Close the air bleed screw and moderately tighten *fig. 5*.
6. Start the engine and allow it to run. If the engine lacks power, carry out the self-clean operation again.
7. If error code 97 is displayed, replace the filter element.

Replacing the filter element: Frequency
Replace the filter element every 400 hours

Replacing the filter element: Procedure
1. Remove the 4 prefilter cover plate screws *fig. 5*.
2. Remove and discard filter (3), retaining pressure maintaining element (4).
3. Refit the new filter element
4. Refit the pressure maintaining element
5. Refit the cover plate and moderately tighten
6. Start and run the engine
7. Check that there are no leaks

Fig. 7. I005577

4.3.10 Fuel system: Fuel injection pump, regulator and injectors
T001047

The injection pump, regulator, and injectors must be checked and adjusted by the dealer or agent (in accordance with the service guide).

4.3.11 FUEL SYSTEM Fuel tank
T001046

Drain the fuel tank every 1200 hours with the hose located under the tank.

4.3.12 Air filter

T001427

Cleaning and replacement: Frequency

Main filter

– Clean the main filter if the blockage indicator light comes on, or on a daily basis if using in dusty conditions.

– Replace the main filter ((2)) *fig. 8* after the blockage indicator light has lit up five times, once a year, or every 1200 hours.

Secondary filter:

– Clean the secondary filter after the main filter has been cleaned five times.

– Replace the secondary filter (3) *fig. 8* after it has been cleaned five times, once a year, or every 1200 hours.

4

Cleaning and replacement of the main filter: Procedure

IMPORTANT: *Stop the engine before starting work on the filter system.*

NOTE: *Although the model shown may not fully correspond to your model, the procedure is identical.*

CAUTION:

Do not use tractor exhaust fumes to blow the main filter or secondary filter out. Never put oil in the main filter or secondary filter. Never use petrol, paraffin, or solvents to clean the main filter or secondary filter.

Before installing the main or secondary filter, visually check that there are no cuts, tears, or damage on the surface of the seals; do not install the filter if such damage is visible.

Fig. 8. I004091

1. Lift the hood panel.
2. Remove the main filter ((2)). To access the filter, unlock and remove the cover plate ((1)).
3. Clean the main filter, depending on its condition:
   – Gently tap the filter on a hard surface to knock out as much dust as possible, then blow through with compressed air at a maximum pressure of 5 bar (73 psi) while keeping the filter at a suitable distance away from the nozzle.
   – After cleaning, check to ensure that the secondary filter (3) is not damaged by illuminating the inside to check that there are no holes, and check the condition of the seals.
4. Carry out the same operations in reverse order to reassemble.

Cleaning and replacement of the secondary filter: Procedure

IMPORTANT: *Stop the engine before starting work on the filter system.*

NOTE: *Although the model shown may not fully correspond to your model, the procedure is identical.*

CAUTION:
Do not use tractor exhaust fumes to blow the main filter or secondary filter out. Never put oil in the main filter or secondary filter. Never use petrol, paraffin, or solvents to clean the main filter or secondary filter.
Before installing the main or secondary filter, visually check that there are no cuts, tears, or damage on the surface of the seals; do not install the filter if such damage is visible.

1. Lift the hood panel.
2. ***IMPORTANT:*** *To clean the secondary filter, do not tap it against a hard surface.*
   Remove the main filter (2) and the secondary filter (3). To access the filters, unlock and remove the cover plate (1) .*fig. 8*
3. Carry out the same operations in reverse order to reassemble.

4.3.13 Cooling system

T001428

Coolant quality

– The coolant quality can have a great effect on the efficiency and life of the cooling system (*see §4.3.1, page 186*).

– ***IMPORTANT:*** *Never use pure water as a coolant.*
If an incorrect mixture is used, AGCO cannot be held responsible for damage caused.
Precautions against freezing: Check the protection level of the mix before the cold season.

The antifreeze/water ratio must always be 40-50% antifreeze to 60-50% water.
The minimum 40/60 mixture must be used even in "non-cold" regions to raise the boiling point and protect the system from corrosion.
The water used should be clean, soft and non acidic.
Avoid the addition of pure water to the system, as this will dilute the mixture.

Checking the level and quality of the coolant

1. Visually check the coolant level every day.
2. ***CAUTION:***
   The quality of the coolant must be checked when the engine is cold.
   Check the quality of the mixture regularly, especially during the cold season.

Filling up to the coolant level

CAUTION:
If the engine is very hot, loosen the plug to the first notch before removing it to lower the expansion tank pressure.

IMPORTANT: *If the correct procedures are not used, AGCO cannot be held responsible for damage caused.*

1. Lift the hood to access the expansion tank.
2. Open the expansion tank plug.
3. Fill the expansion tank with coolant up to mid-way between the max/min witness marks.
4. After filling, open the heater tap fully and run the engine at 1000 rpm for several minutes.
5. Switch off the engine, check the level and fill up if necessary, without exceeding the mid-way point on the tank.
   Refit the plug.

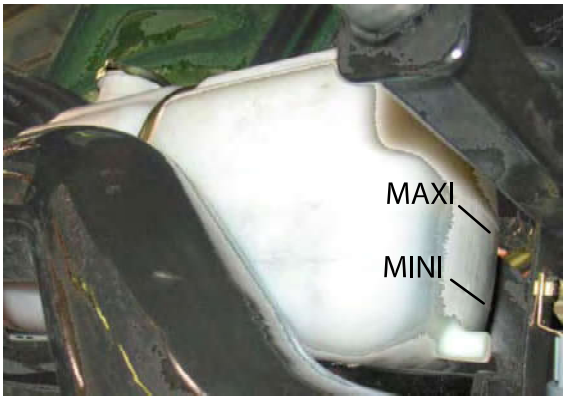


Fig. 9. I004092

Draining the cooling system

Drain the system every 1200 hours according to the following procedure.

CAUTION:
Wait until the system has completely cooled before draining.

1. Lift the hood to access the expansion tank.
2. Open the expansion tank plug.
3. Place a drip pan underneath the radiator.
4. Remove the drain plug from the radiator and allow the fluid to drain out completely .
5. Refit the radiator drain plug and fill the system.
6. Fill the system via the expansion tank and then after filling, open the heater tap fully and run the engine at 1000 rpm for several minutes.
7. Switch off the engine, check the level and fill up if necessary, without exceeding the mid-way point on the tank.
   Refit the plug.

Fig. 10. I006263

Cleaning the radiator

Clean the radiator fins with compressed air every day, depending on the work performed.

4.3.14 Checking the fan/alternator/air conditioning Poly-V belt

T001499

Tension

Check the belt tension every 400 hours

Appearance

Examine the appearance of the belt (on a daily basis or whenever refueling).

– Cross cracks (running across the breadth of the belt) are permissible.

– Longitudinal cracks (running along the length of the belt) that intersect cross cracks are not permissible.

Replace the belt if it is cracked in an unacceptable way, frayed or if pieces have come off (*see §4.3.15, page 195*).

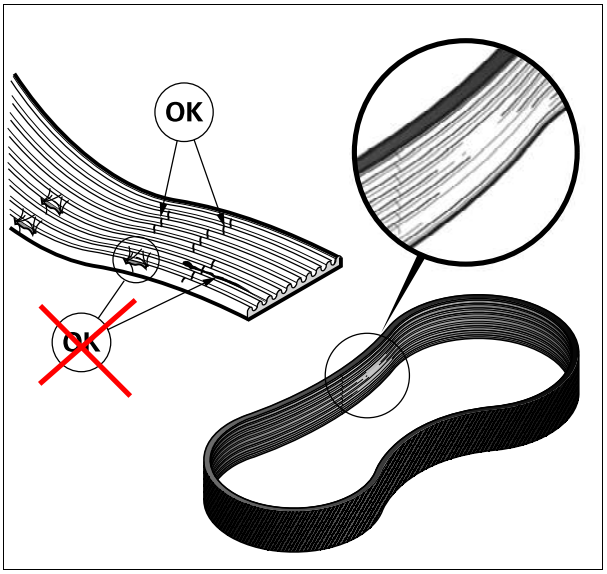


Fig. 11. I004763

4.3.15 Replacing the fan/alternator/air conditioning belts

T001429

Frequency

Replace the belts as soon as they show signs of wear or every 1200 hours.

Fig. 12. I012873

Procedure for a Poly-V belt and roller tensioner

1. Lift the tensioner to remove and refit the belt.
2. After replacement, check the belt tension and adjust if necessary.
3. After the tensioner has been slackened to remove/fit the belt, check the torque of the tensioner screw 43 Nm (32 lbf ft).
   The belts are tensioned by an automatic tensioner.

Fig. 13. I005132

Procedure for a Poly-V belt and spring tensioner

1. Pull the belt manually so as to engage the specific tension spring retaining tool (4315579M1) (1).

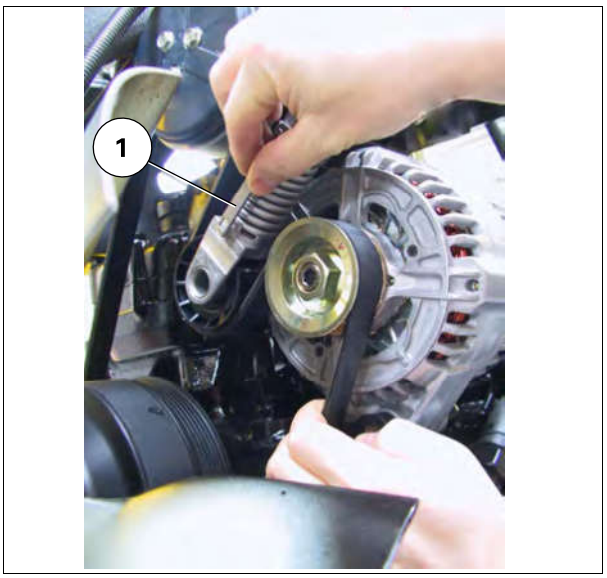


Fig. 14. I004766

2. Loosen the tension spring support screws (2) to release the belt and replace it.
3. During re-fitting, push the end of the tension support (3) as far as it will go and retighten the screws (2) to a torque of 27 Nm (20 lbf ft) to 37 Nm (27 lbf ft).
4. Remove the tool (1) to ensure belt tension.
   Nominal tension value: 73 Nm (54 lbf ft)
   The belts are tensioned by an automatic tensioner.

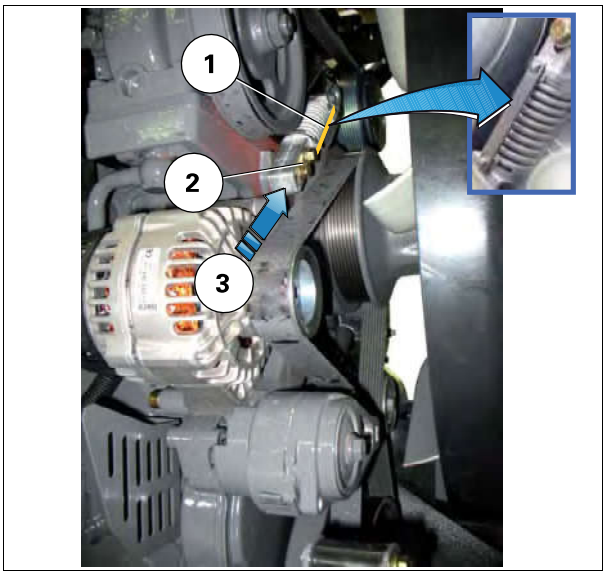


Fig. 15. I012651

4.3.16 Fuel

T001051

Reminder of the safety instructions

Before handling fuel, filling the tank, etc., observe the following:

- Under no circumstances should gasoline, alcohol, paraffin, dieselhol (a mixture of diesel and alcohol), or any other substance be added to diesel fuel as there is an increased risk of fire or explosion.
  In a closed container such as a fuel tank, these mixtures are more explosive than pure gasoline. Do not use them. Additionally, dieselhol is not approved due to possible inadequate lubrication of the fuel injection system.
- Clean the filler plug area. Fill the fuel tank at the end of each working day to reduce overnight condensation.
- Never remove the plug or refuel when the engine is running.
- When filling the tank, keep control of the nozzle.
- Do not smoke.
- Do not fill the tank to its full capacity. Allow room for expansion and wipe up spilt fuel immediately.

– If the original plug is lost, replace it with an AGCO plug and tighten securely. A non-AGCO plug may not be guaranteed to seal.
– Ensure that the equipment is properly maintained.

CAUTION:
Diesel fuel is flammable. Handle fuel with care. Keep away from flammable sources. Do not smoke when filling the tank. Do not leave the tractor unattended when filling the tank. Clean up any spilt fuel after filling the tank. Any material which comes into contact with the fuel must be moved to a safe place.
If high-pressure fuel comes into contact with eyes, wash immediately with clean water and seek medical help.

Recommended fuel specification

The fuel used must conform to the standard DIN EN 590.
To obtain the correct power and optimum engine performance, use only good quality fuel.

Fuel storage

The utmost care must be taken to keep fuel clean.

– Never clean the inside of containers or other fuel system components with a fluffy cloth.
– The capacity of bulk storage tanks should not be too large: 10000 l (2642.0 gal (US))approx.
– The storage tank should be under cover and supported on a cradle high enough for the tractor fuel tank to be filled by gravity. It should have a suitable manhole to provide access for cleaning. The outlet valve should be about 75 mm (3.0 in) above the bottom of the tank to allow water and sludge to settle. It should have a removable screen. The storage tank should slope by about 4 cm per meter towards the rear (drain plug side).

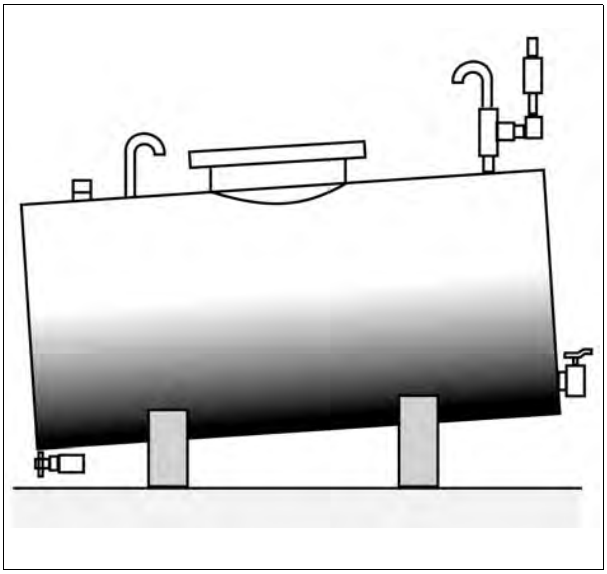


Fig. 16. I003532

– Let the fuel settle in the storage tank for 24 hours before use after any servicing or refilling the tank.
– Clean out the storage tanks regularly; normally every five years, more frequently in cold climates.
– Bleed the tanks frequently to drain off any water formed by condensation.
– Rotate fuel stocks to prevent deterioration of old fuel and the accumulation of water or foreign matter.
– Bring in fresh supplies without waiting for stocks to run out; refueling from the bottom of the tank may cause a blockage.

Advice on the use of fuel in cold weather

– In cold weather, diesel fuel increases in viscosity and wax particles form. This may lead to operating problems if precautions are not taken.
– ***IMPORTANT:*** *Environmental protection — you must comply with local regulations in force relating to underground storage.*

  Underground storage is preferable.
  If this is not possible, place the storage tank in a location which is protected from the cold, wind and damp.
– After filling the storage tank, drain the first 5 liters into a drum before filling the fuel tank. Then return the fuel in the drum to the storage tank.
– Insulate all exposed pipework. Ensure that any pipework is short in length and designed to be disassembled if necessary.
– Only stock "winter" quality fuel during the cold weather season.

- Frequently clean the fuel filter bowl.
- Do not puncture the fuel filter.
- Ensure that a spare filter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

4.3.17 Biodiesel fuel

T006988

Recommendations

4

Specific recommendations for Perkins Tier 3 engines and requirements concerning the SisuDiesel engine water separator

Tractors can run on a fuel mixture containing biodiesel. The percentage of the mixture varies according to the manufacturer and the engine specifications.
The following information and the table below provide all the details for each engine and the new servicing instructions.

Biodiesel fuels that comply with standards EN 14214 or ASTM D6751 are acceptable.
Rape methyl esters (RME), vegetable oil methyl esters (VOME), and soy methyl esters, together known as fatty acid methyl esters (FAME) are all included in these standards.

IMPORTANT: *Unrefined, cold-pressed rapeseed oil, other unesterified vegetable oils, or types of fuel such as ethyl alcohol and methanol MUST NOT BE USED in these products. This fuel requires a different type of engine design, with precombustion chambers or a specific type of injection system. Moreover, "domestic fuel" must not be used as its quality has been reduced by refineries. It can no longer provide sufficient lubrication and the amount of heavy polycyclic aromatic hydrocarbons has been increased to a critical level.*

Perkins Tier 0, 1, and 2 engines can run on a mixture containing up to 5% biodiesel, without any modification to the servicing schedule.

Perkins Tier 3 engines can run on a mixture containing up to 5% biodiesel, without any modification to the servicing schedule.

All 1104D mechanical engines, 1104D electronic engines with an engine number after No. U022408S, and 1106D electronic engines with an engine number after No. U013753S can run on a mixture containing up to 20% (B20) biodiesel without any modification to the servicing schedule, apart from the fuel filters, which must be changed after 50 hours when biodiesel is used for the first time. Electronic engines with numbers prior to those mentioned above can only run on a mixture containing 5% biodiesel as the high-pressure pump and the injectors do not have a nitride coating and would suffer premature wear if a more concentrated mixture of biodiesel were used.

SisuDiesel Tier 0, 1, 2, and 3 engines can run on a fuel mixture containing up to 100% biodiesel. If a 100% mixture is used in these engines, the time between oil changes and oil filter and fuel filter maintenance must be reduced by half. An additional water separator must also be installed (V836859301).

The following instructions must be observed.

If the oil level exceeds the "Max" mark on the dipstick, the engine oil must be replaced. If a fuel leak (oil increase/dilution) suddenly worsens, the cause must be identified and corrected.

Biodiesel can be used pure at start-up temperatures down to approximately –16 °C (60.80 °F). Diesel fuel must be used to start up at temperatures below –16 °C (60.80 °F).

If the tractor is not used for 4 weeks, the engine must be started up and then stopped using pure diesel fuel to avoid the various components and filters from becoming blocked as the seals have reduced resistance to biodiesel.

As biodiesel is a very powerful solvent, any residue in the fuel system may become dislodged after using biodiesel. The fuel filters must therefore be replaced after the first few times the tank is filled with biodiesel.

The low combustion value of biodiesel may lead to a drop in performance of 5% or an increase in fuel consumption of approximately 10%. All older models must therefore be carefully inspected in an approved servicing workshop before using biodiesel. Low compression, a leak from the injectors, and coolant temperatures that are too low may lead to dilution of the engine oil. All the hoses and pipes must be checked at least once a year by an approved agent.

General instructions

The fuel must be stored in compliance with the recommended standards to avoid any water absorption or deterioration. Fuel must never be stored for more than 12 months. Under certain conditions, fuel deterioration may lead to corrosion of the metal components and cause the seals to split prematurely.

Never store fuel in a tank with a painted inner surface, as biodiesel dissolves many types of paint.

When you fill up the tractor, make sure that the fuel does not run down the side of the filler neck. If there is any spillage, wipe up any traces of fuel immediately. Avoid splashing the hoses with fuel and wipe off any spillage as quickly as possible.

Engine	Mixture containing biodiesel	Specific actions to perform
Perkins – Tier 0, 1 & 2	5%	None
Perkins – Tier 3*	20%	Replace the fuel filters after 50 hours for the first use
Valmet/Sisu Tier 0, 1, 2, and 3	100%	Reduce the time between servicing by half. Additional water separator required
* 1104D electronic engines with numbers after No. U022408S and 1106D electronic engines with numbers after No. U013753S.		

Using biodiesel at levels higher than those recommended can have adverse effects on the engine and the fuel system. The higher the concentration of biodiesel, the more harm these effects will cause. It is therefore essential to service the machine at the recommended intervals, or at shorter intervals if recommended, in order to protect the engine and fuel system. The following instructions must be observed.

The oil may become diluted when cold starting or when running at idle speed or partial load. If the oil level exceeds the "Max" mark on the dipstick, the engine oil must be replaced. If a fuel leak (oil increase/dilution) suddenly worsens, the cause must be identified and corrected.

- Loss of power and reduced performance
- Fuel leaks from the seals and hoses
- Corrosion of the fuel injection equipment
- Reduced lubrication of the fuel injection pump
- Carbonization/obstruction of the injectors, leading to diminished fuel spraying
- Filter blockage
- Coating/seizing of the internal injection system components
- Build-up of mud and sediments
- Reduced operating life

The normal warranty for the machine remains the same on condition that the information and standards given above are complied with and the machine is serviced by an approved AGCO dealer according to the servicing schedule.

Claims under warranty are not accepted for paint damage caused by biodiesel. All claims regarding exhaust fume emissions, increased fuel consumption, or reduced performance due to the use of biodiesel are also excluded.

Faults caused by the use of any type of fuel are not considered to be manufacturing or materials faults and are not covered by the AGCO warranty.

4.4 Transmission

4.4.1 Recommended products

T008034

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Transmission and Auxiliary hydraulics

SAE 15W40 oil complying with MF specifications CMS M1145.

NA market: AGCO Permatran 821XL 10W30

IMPORTANT: *When AGCO Permatran 821XL 10W30 oil is used, the servicing intervals must be reduced to 1000 hours.*

Hydraulic clutch.

Pentosin CHS 11S oil.

Rear final drives

All models: SAE 85W140 (API-GL-5)

4.4.2 Checking the transmission oil level

T001409

Frequency

Check the transmission oil level every day.

Procedure

1. Stand the tractor on level ground, with the front axle suspension disengaged.
   Stop the engine.
2. Check that the level is between the minimum and maximum marks on the dipstick.
3. Fill up if necessary.

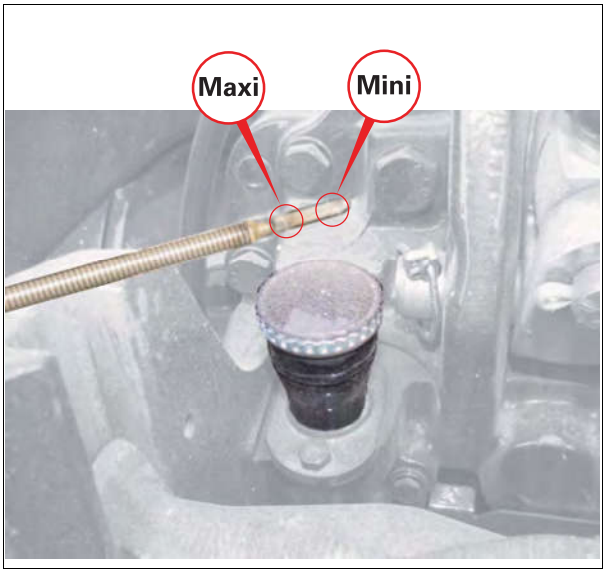


Fig. 1. I017782

4.4.3 Draining the transmission oil

T001411

Frequency

Drain and replace the transmission oil every 2000 hours.

IMPORTANT: *If 821XL type oil is used, the oil must be changed every 1000 hours.*

Procedure

NOTE: *Do not drain until the transmission oil is hot.*

1. Stand the tractor on level ground, with the front axle suspension disengaged.
2. Place the lower linkage arms in the lowest position.
   Stop the engine.
3. Remove the drain plug (1) and the filler plug (A). Wait until the oil has drained out completely.
4. Refit the drain plug (1), then refill the transmission with the recommended oil to the correct level.
   NOTE: *Allow time for the oil to settle in the transmission and the rear axle before rechecking the level. After changing the transmission oil, you MUST bleed the hydraulics and brake systems. If necessary, consult your nearest dealer.*

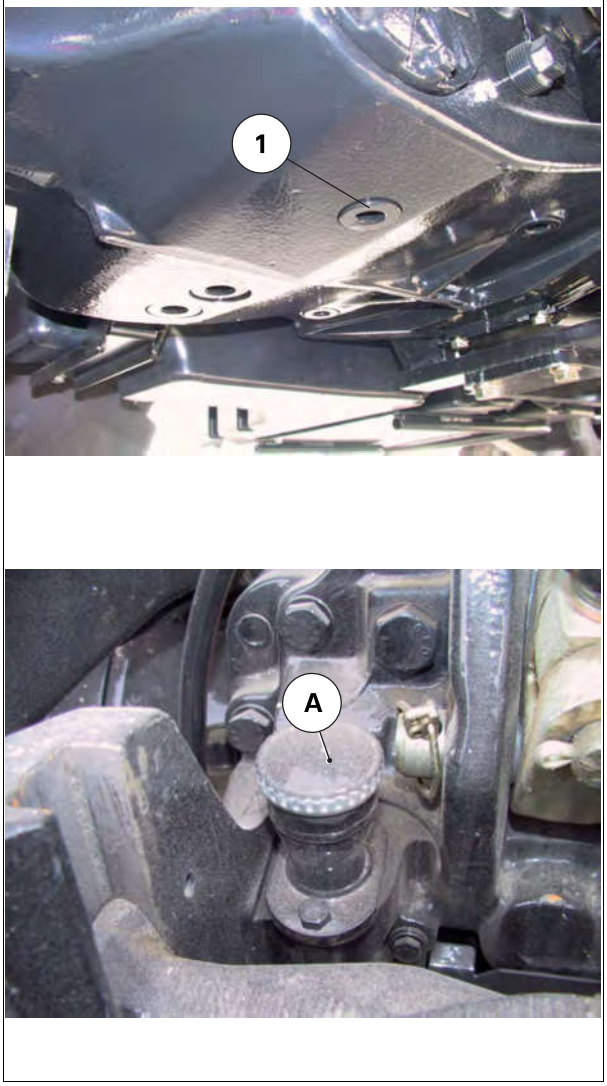


Fig. 2. I017771

4.4.4 Checking the level of the rear final drive units

T001413

Frequency

Check the oil level in the rear final drive units every 400 hours.

Procedure

NOTE: *In order to access the plug, it may be necessary to remove the oil recovery bowl.*

1. Unscrew the plug (1); the oil level should be 55 mm (2.2 in) below the filler plug.
2. Fill up if necessary.

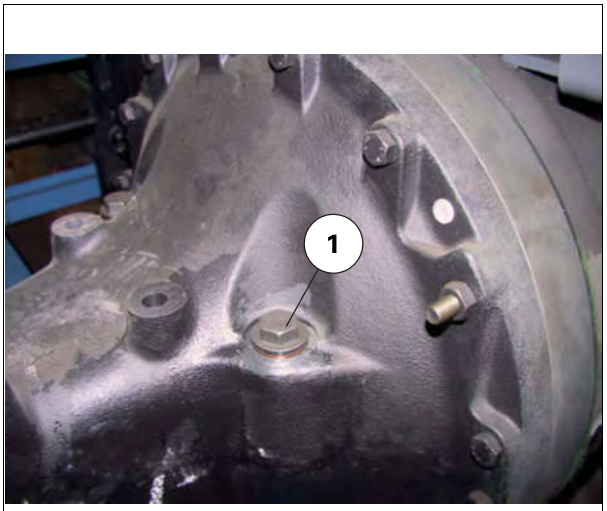


Fig. 3. I017779

4.4.5 Draining the final drives

T001414

Frequency

Drain and replace the oil in the final drives every 2000 hours.

Procedure

1. Remove the drain plug (1) and the level plug for filling (*see §4.4.4, page 201*).
2. After completely draining the oil, refit the drain plug and then refill the rear final drives to the correct level with a recommended oil.
   NOTE: *Allow time for the oil to settle before rechecking the level.*

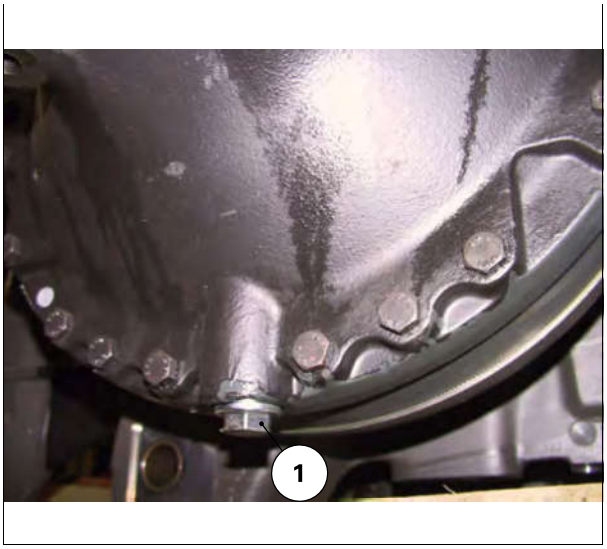


Fig. 4. I004071

4.4.6 Filtering the transmission hydraulic system

T006953

Replacing the filter strainer: Frequency

Replace the transmission filter strainer every 2000 hours.

Replacing the filter strainer: Procedure

1. To access the strainer, the ParkLock cylinder needs to be moved out of the way once the 3 support screws have been loosened (1).
2. Unscrew the 3 screws on the retainer plate, remove the strainer and discard it.
3. Fit the new strainer in its place.
4. Fit the retainer plate and tighten the 3 screws.
5. Put the ParkLock cylinder back in position and retighten the 3 support screws (1).

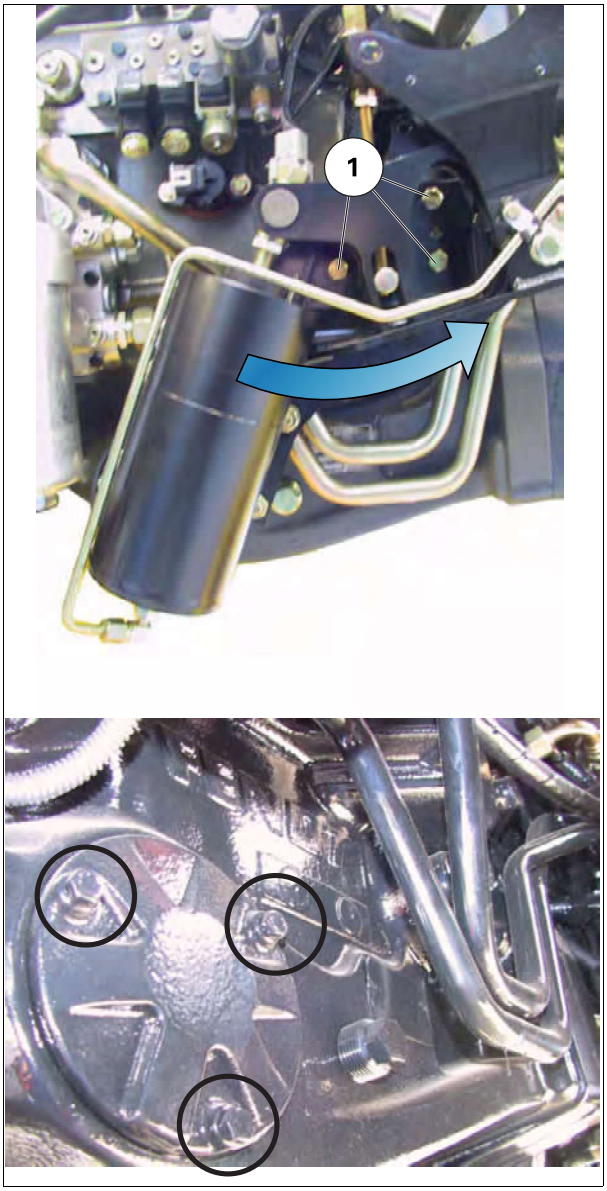


Fig. 5. I017783

Replacing the high-pressure filter: Frequency

Replace the high-pressure filter (2) every 400 hours the first time, and then every 800 hours.

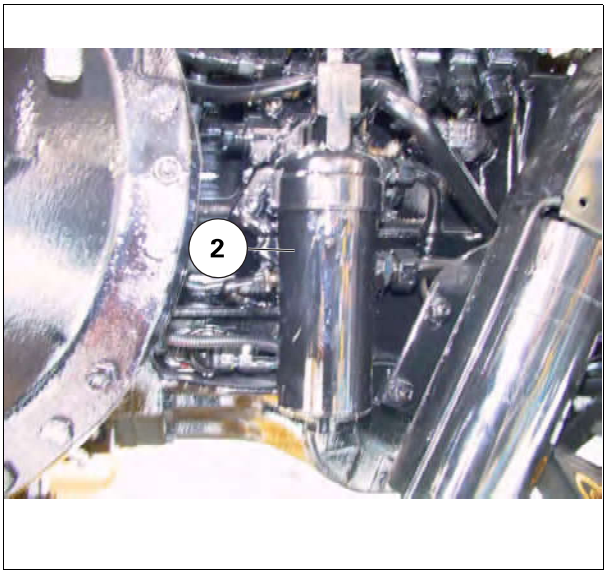


Fig. 6. I017794

Replacing the high-pressure filter: Procedure

1. Unscrew the filter bowl.
   Remove the filter element, allow it to drain fully, and discard it
2. Replace the seal every 800 hours, or as necessary.
3. Slide the new filter element into the filter head.
   NOTE: *To prevent contamination of the filter element due to foreign material (mud, etc.), do not completely remove the protective plastic until it is fitted in place.*
4. Replace the filter bowl and screw hand-tight until it locks.

4

4.4.7 Transmission oil cooler (according to version)

T001731

Frequency

Clean the transmission cooler fins every 400 hours (variable frequency).

Procedure

1. Press the button (1).
2. Pull the handle downwards to disengage the joint 2.
3. Use the handle to put the assembly back into position 3.

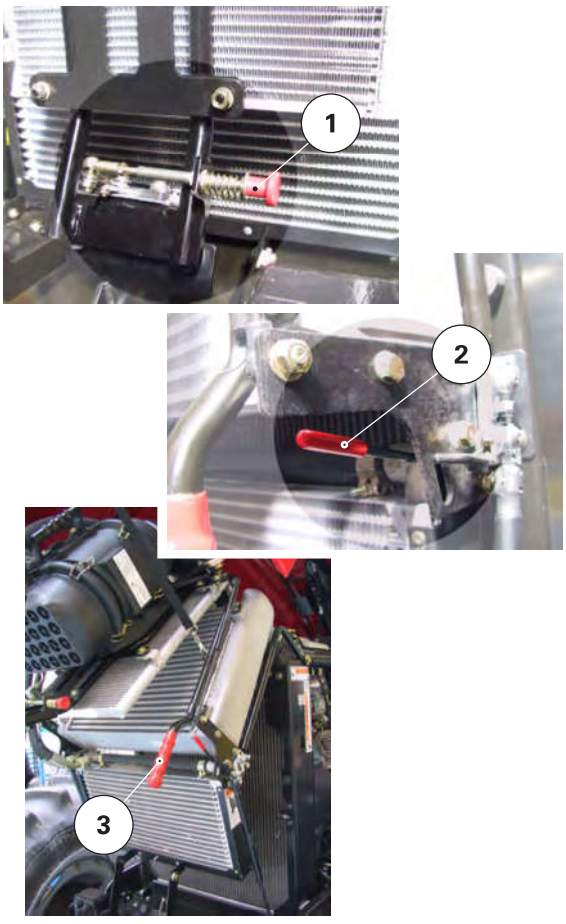


Fig. 7. I005614

4.4.8 Lubricating the rear PTO shaft

T001330

DANGER:
Stop the engine before lubricating the rear PTO shaft.

Lubricate the rear PTO shaft every 50 hours.
This lubrication protects the rear PTO shaft from corrosion and assists implement hitching.

4.4.9 Clutch

T002980

Level

Check the clutch fluid level at each overhaul and after any work on the system. Remove the flexible protection to gain access to the filler bowl.

Fig. 8. I017804

Draining

Drain the clutch system every 2000 hours.

IMPORTANT: *Make sure to check the oil level and bleed the clutch system after performing any work on the system.*
Consult your dealer if necessary.

4.5 Brakes

4.5.1 Bleeding the brake system

T001058

Frequency

Bleed the brake/piston system every 1200 hours and after every servicing operation.

Bleed screw locations

4

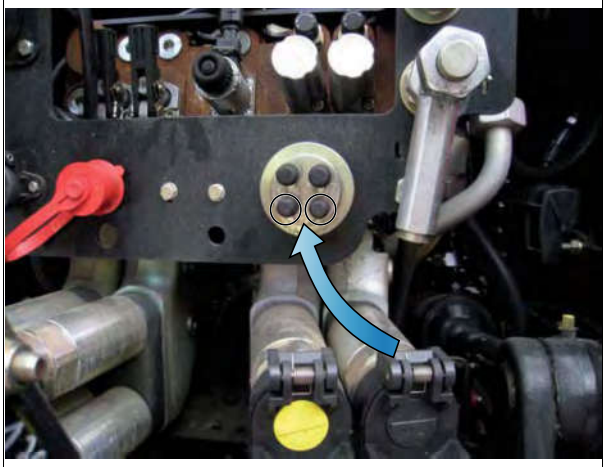


Fig. 1. I017807

4.6 Power take-off

4.6.1 Recommended products

T001818

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Zuidberg front power take-off

You must use Autran DX III/Fluid 9 oil.

4.6.2 Lubricating the front PTO shaft

T001462

DANGER:

Stop the engine before lubricating the front PTO shaft.

Lubricate the front PTO shaft once a week.
This lubrication protects the front PTO shaft from corrosion and assists implement hitching.

4.6.3 Zuidberg front power take-off

T001825

Frequency

NOTE: *The front PTO functions hydraulically in a separate, independent system. The entire system is cooled by an oil cooler.*

Drain the front PTO at 50 hours and then every 400 hours.

Procedure

1. Remove the two drain plugs (1).
2. Remove the circlip and loosen the screw holding the filter cover plate (2). Remove and clean the pump filter at each draining.
3. Refit the assembly with a new circlip.
4. In the event of a leak, check the oil level after unscrewing the plug (3). Fill up and consult your dealer.

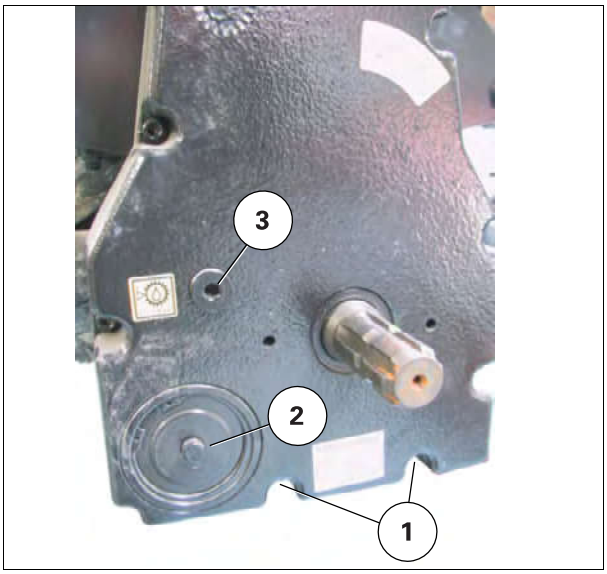


Fig. 1. I007960

4.7 Front axle and steering

4.7.1 Recommended products

T008057

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Front axle

Oil for DANA front axle: API GL5; SAE85W90

Grease: Super Lithium AGCO No. 2, 410 g (14.46 oz) tube - reference 7901 4728

4.7.2 Four-wheel drive front axle Checks and lubrication

T001737

Frequency

Check the front axle screws, nuts, counter-nuts and bearings for tightness from time to time.

Lubricate the front axle every 50 hours.

Lubrication points

– Pivot pins

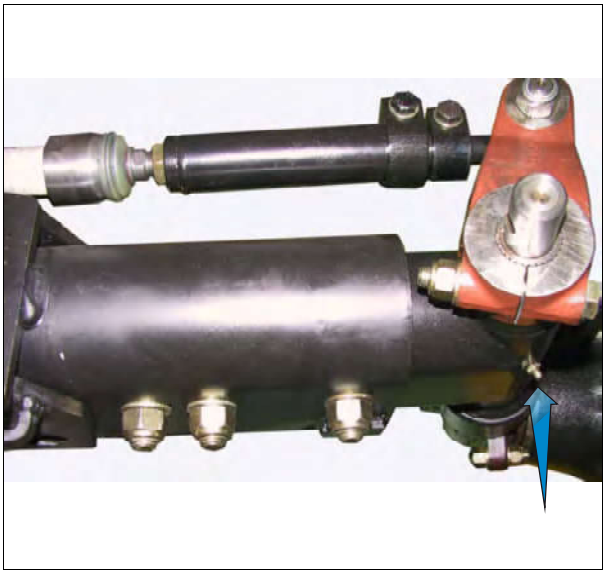


Fig. 1. I012448

– Front axle bearings

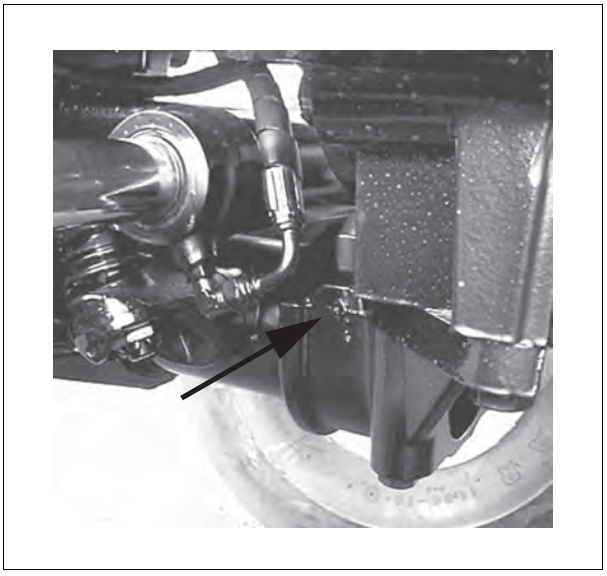


Fig. 2. I005622

4.7.3 Four-wheel drive front axle: Checking the front axle beam oil level

T001294

Frequency

Check the front axle beam oil level every 400 hours.

Procedure

1. Stand the front axle on level ground.
2. Unscrew the plug (1) and check the level. The oil should be level with the lower rim of the filler plug port. Fill up if necessary.

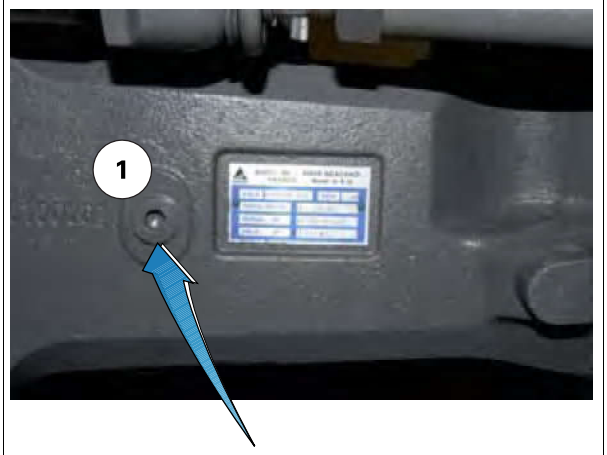


Fig. 3. I008041

4.7.4 Four-wheel drive front axle: draining the oil from the front axle beam

T001313

Frequency

Change the front axle beam oil every 800 hours.

Procedure

IMPORTANT: *Do not dispose of the oil in the environment. Always store oil in suitable containers so that it can be collected and processed by specialist organizations.*

NOTE: *Do not drain until the front axle beam oil is hot.*

1. With the tractor on level ground.
2. Unscrew the drain plug (2) and the filler plug (1) *fig. 3*. Allow the oil to drain out.
3. Collect the used oil in a container of sufficient size.
4. Refit and retighten the drain plug.
5. Fill up with the recommended oil type to the lower level of the filler port.
6. Refit and retighten the filler plug.
7. Check there are no leaks

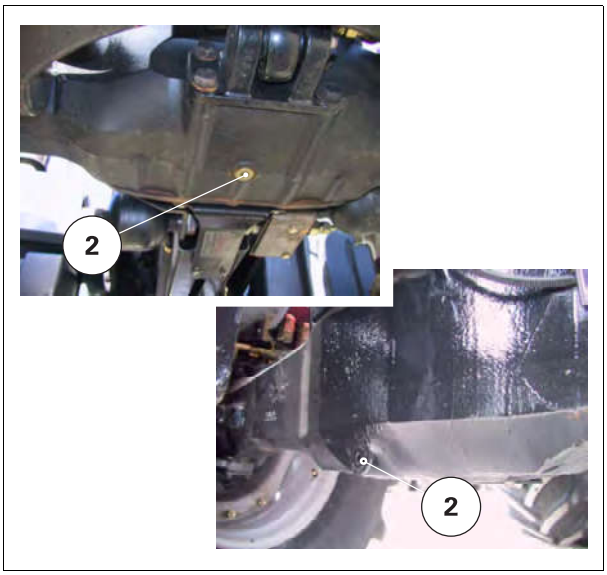


Fig. 4. I017827

4.7.5 Four-wheel drive front axle: checking the oil level in the final drives

T001449

Frequency
Check the oil level in the front final drives every 400 hours.

Procedure
1. Turn the wheel until the plug is horizontally aligned with the centre of the hub (B) .*fig. 5*
2. Remove the plug and check that the oil level is flush with the plug port.

4

4.7.6 Four-wheel drive front axle: draining the oil in the final drives

T001450

Frequency
Drain the oil from the front final drives every 800 hours.

Procedure
1. Turn the wheel until the plug is located at the bottom of the hub (A).
2. Remove the plug to drain the oil.
3. Horizontally align the plug with the centerline of the hub (B) and then fill to the correct level.
4. Return the plug to its position and tighten to 90 Nm (66 lbf ft).

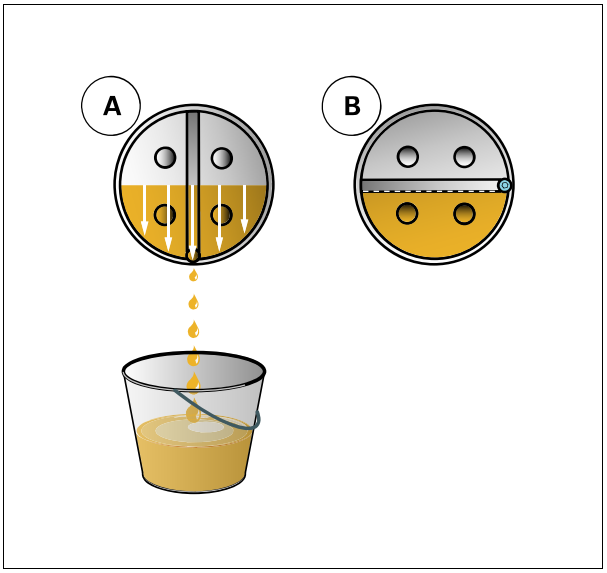


Fig. 5. I004142

4.7.7 Four-wheel drive front axle: LUBRICATION

T001820

Frequency
Check/lubricate the front axle pivots once a week.

Lubrication points

(1) (2) Pivot pins

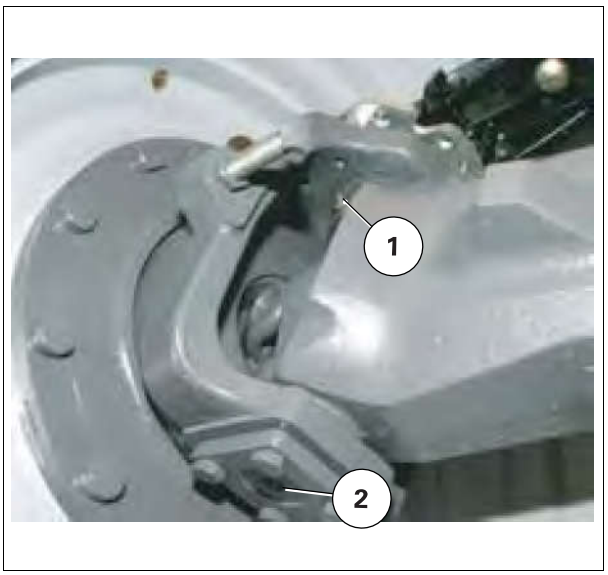
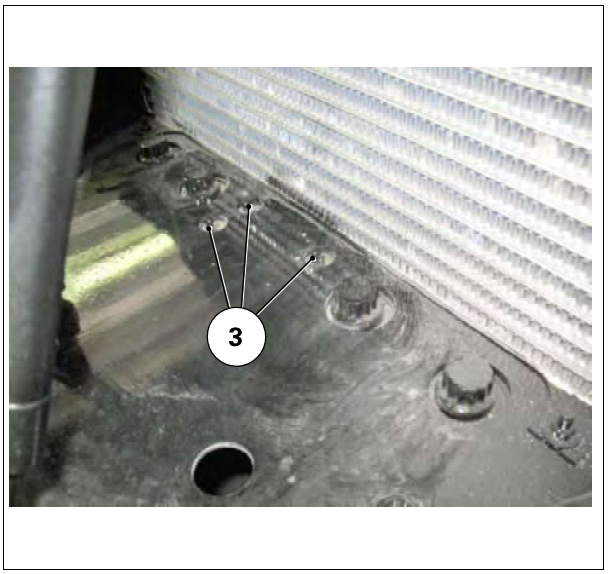


Fig. 6. I004197

(3) Front/rear bearings on front axle



I004175

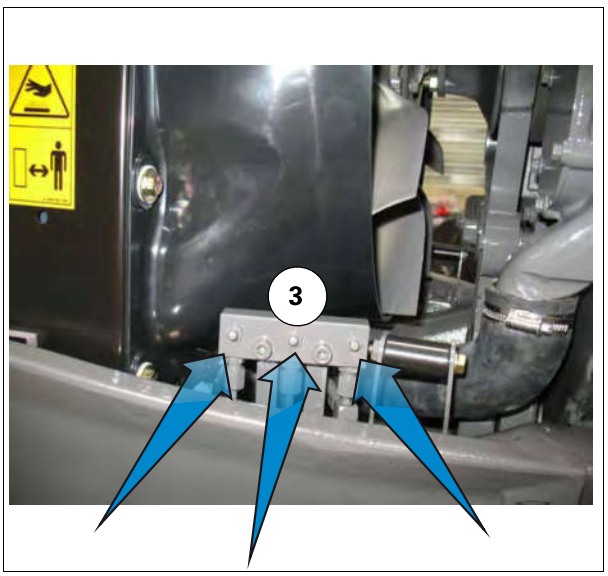


Fig. 7. I012436

NOTE: *Lift the front end of the tractor to assist lubrication.*

(4) Suspended front axle support joint

Fig. 8. I004176

(5) Lower cylinder pivot on suspended front axle

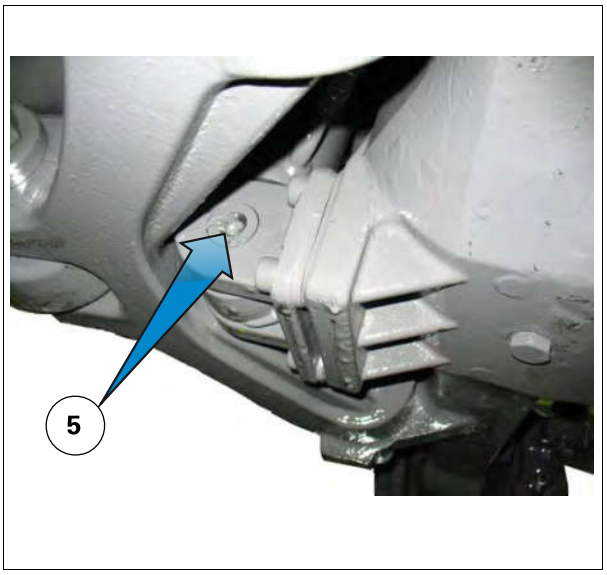


Fig. 9. I012365

4.7.8 Suspended front axle

T001823

Checking and draining

CAUTION:

All servicing operations should be carried out with the engine switched off and the suspension disengaged.

WARNING:

The hydraulic system of the suspended front axle is pressurized. It is essential to consult your dealer before attempting to carry out any maintenance on it.

NOTE: *The front axle suspension must be deactivated before checking the level of the rear axle/transmission assembly.*

1. For checking and draining operations, *see §4.7.3, page 209* and *see §4.7.4, page 209*
2. The accumulator pressures should be checked by your dealer or agent once a year.

4.8 Linkage

4.8.1 Recommended products

T002931

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Linkage shaft

SAE 10W40 or 15W40 oil.

4.8.2 Check the linkage shaft oil level

T001316

Frequency

Check the linkage shaft oil level every 2000 hours or every 2 years.

Procedure

1. Remove the plug located between the hydraulic spool valves (1).
2. The oil should be level with the port.
3. Fill up if necessary.

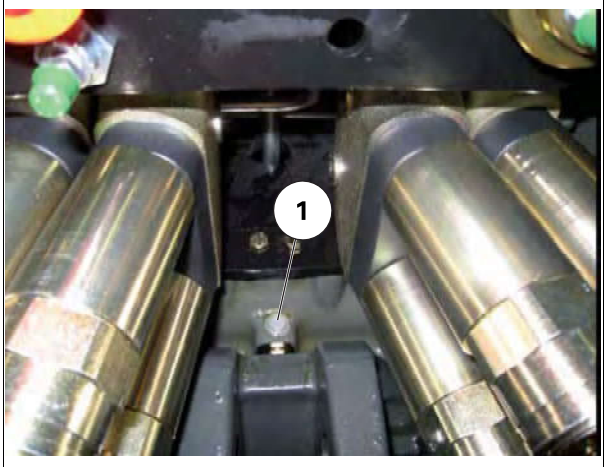


Fig. 1. I017833

4.9 Linkage

4.9.1 Recommended products

T001454

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Grease nipples

Grease: Super Lithium AGCO No. 2, 410 g (14.46 oz) tube - reference 7901 4728

4

4.9.2 Three-point linkage lubrication

T001770

Frequency

Check/lubricate the linkage mechanism once a week.

Lubrication points

IMPORTANT: *The threaded parts and hitch pins must be correctly protected with grease.*

(1) Lift rods (2 x 2 grease nipples)
(2) Stabilizers (2 x 1 grease nipples)

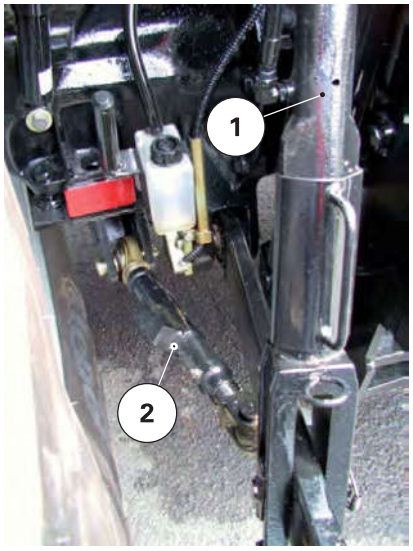


Fig. 1. I005735

3 Top link (2 grease nipples)

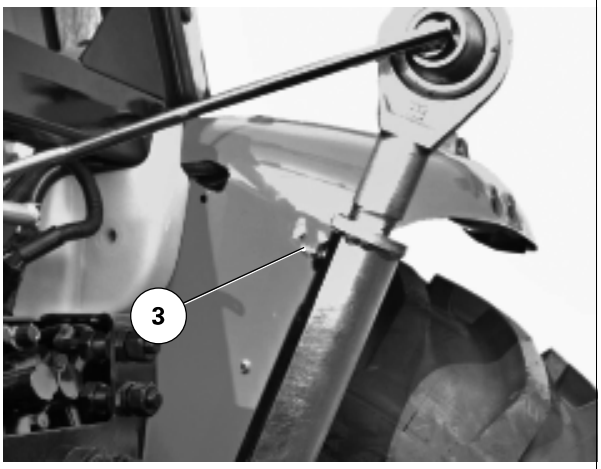


Fig. 2. I017829

4.9.3 Front linkage: lubrication

T001799

Frequency

Check/lubricate the front linkage joints once a week.

IMPORTANT: *During extended periods of storage, ram rods (A) fig. 4 should not come into contact with the air (risk of corrosion and subsequent leakage). Rams should be fully retracted or greased.*

Lubrication points

(1) Ram upper joints

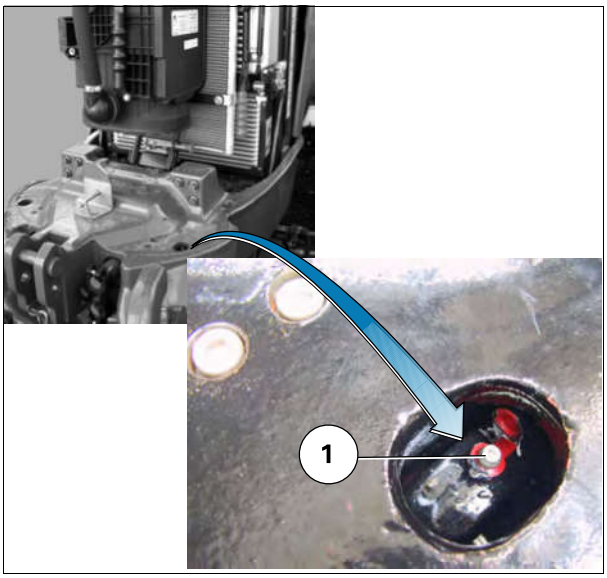


Fig. 3. I017859

(2) Ram lower joints

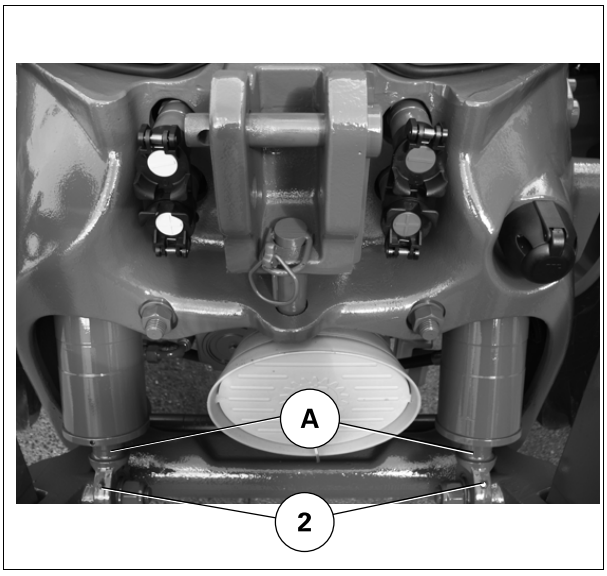


Fig. 4. I017858

(3) Linkage arm pin

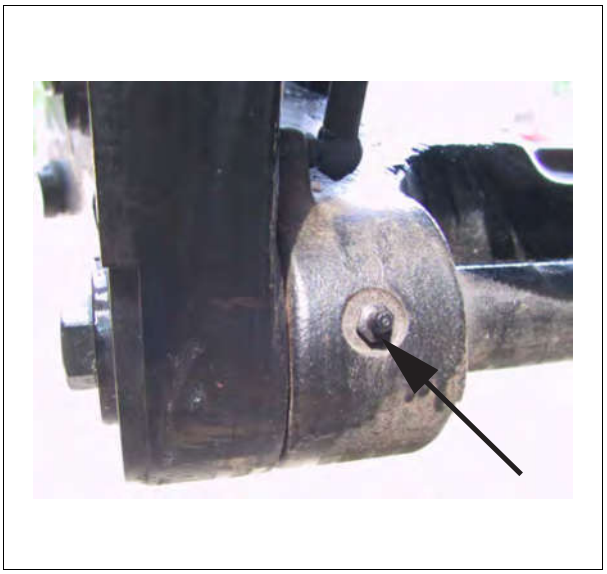


Fig. 5. I005778

4

4.9.4 Ball hitch: lubrication

T007346

Frequency

Check/lubricate the hitch ball once a week.

WARNING:
Stop the PTO before lubricating.

Lubrication points

(1) The grease nipple of the hitch ball can be accessed from underneath

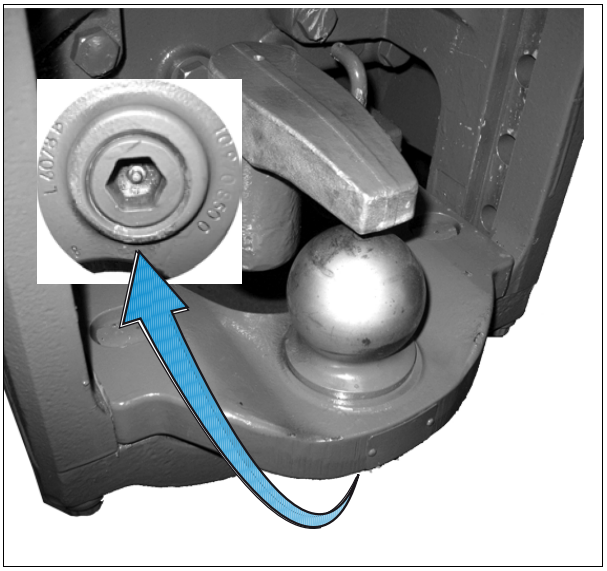


Fig. 6. I018815

4.10 Auxiliary hydraulics

4.10.1 Recommended products

T001559

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Auxiliary hydraulic system

10W40 oil complying with MF specifications CMS M1145.

4.10.2 Checking the auxiliary hydraulic system oil level

T001416

Frequency

Check the auxiliary hydraulic system oil level every day.

Procedure

IMPORTANT: *If this indicator light comes on during operation, consult your Distributor or Dealer.*

1. Regularly check the auxiliary hydraulic oil level next to the right-hand step (1).

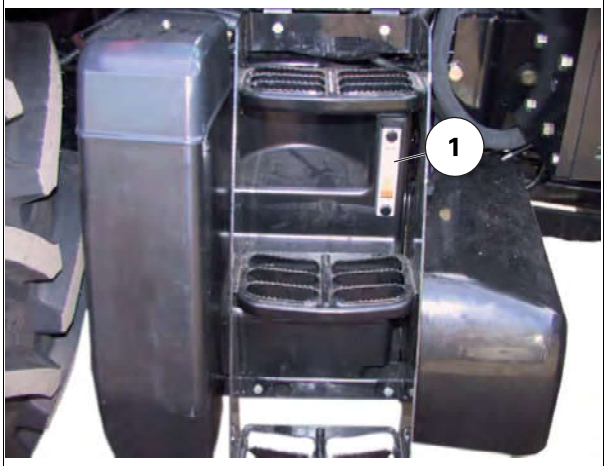


Fig. 1. I017860

2. Top up if necessary via the plug (2) located next to the right-hand step.

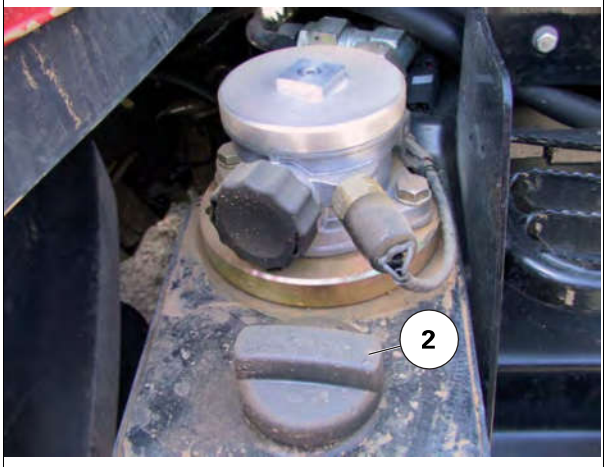


Fig. 2. I017861

4.10.3 Draining the auxiliary hydraulic system

T001452

Frequency

Drain and replace the oil in the auxiliary hydraulic system every 1200 hours.

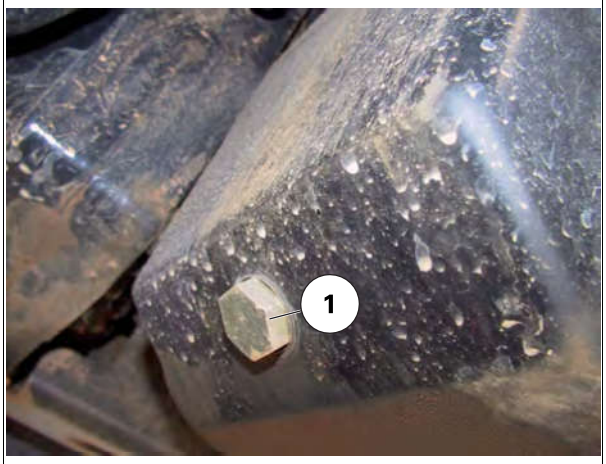
Procedure

NOTE: *Do not drain until the oil is hot.*

1. ***IMPORTANT:*** *Before opening the filler plug (2), ensure the fender of the tractor and the area around the plug (2) are cleaned thoroughly to prevent impurities from entering the auxiliary hydraulic oil tank.*

2. Remove the drain plug (1) and the filler plug (2). Wait until the oil has drained out completely.
3. Refit the drain plug (1).
4. ***IMPORTANT:*** *Ensure that clean oil from a clean tank is used and that a clean funnel is used for filling.*
   Oil cleanliness must comply with standard NAS 1638 class 10.

   Fill the tank through the filler plug (2) with the recommended oil.
   NOTE: *If the oil is taken from a large capacity storage tank, use a prefilter when filling.*



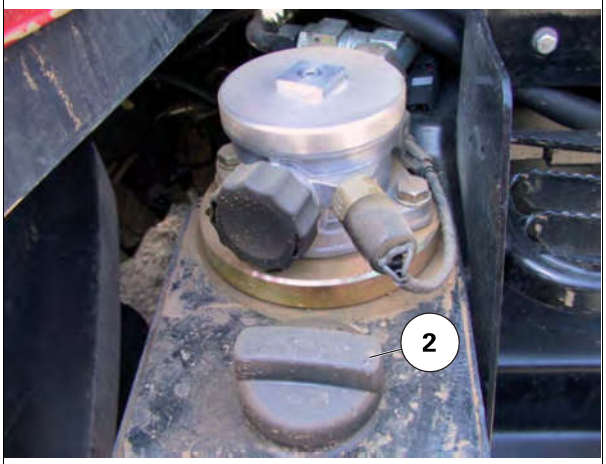


Fig. 3. I017862

4.10.4 Filtering the auxiliary hydraulic system

T006974

Replacing the 300-micron filters: Frequency

Replace the 300-micron filters (1) and (2) if the hydraulic system is polluted.

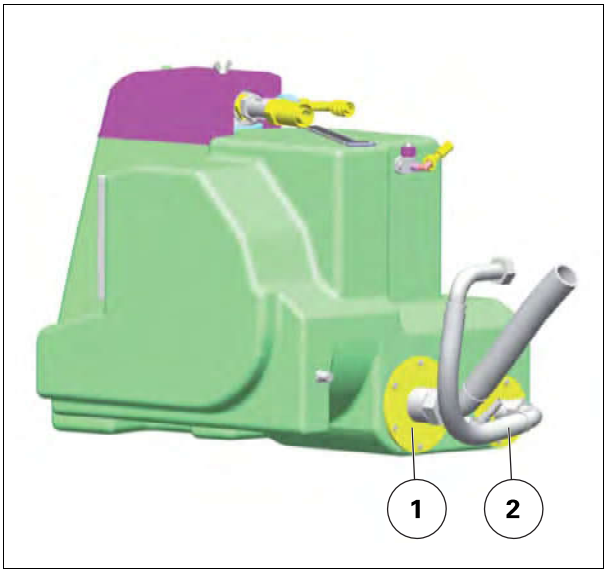


Fig. 4. I017883

Replacing the 300-micron filters: Procedure

NOTE: *Replacing the 300-micron filters requires the tank to be removed (consult your dealer).*

1. Refer to your dealer.

Replacing the 15-micron return filter: Frequency

Replace the 15-micron return filter (1) every 400 hours.

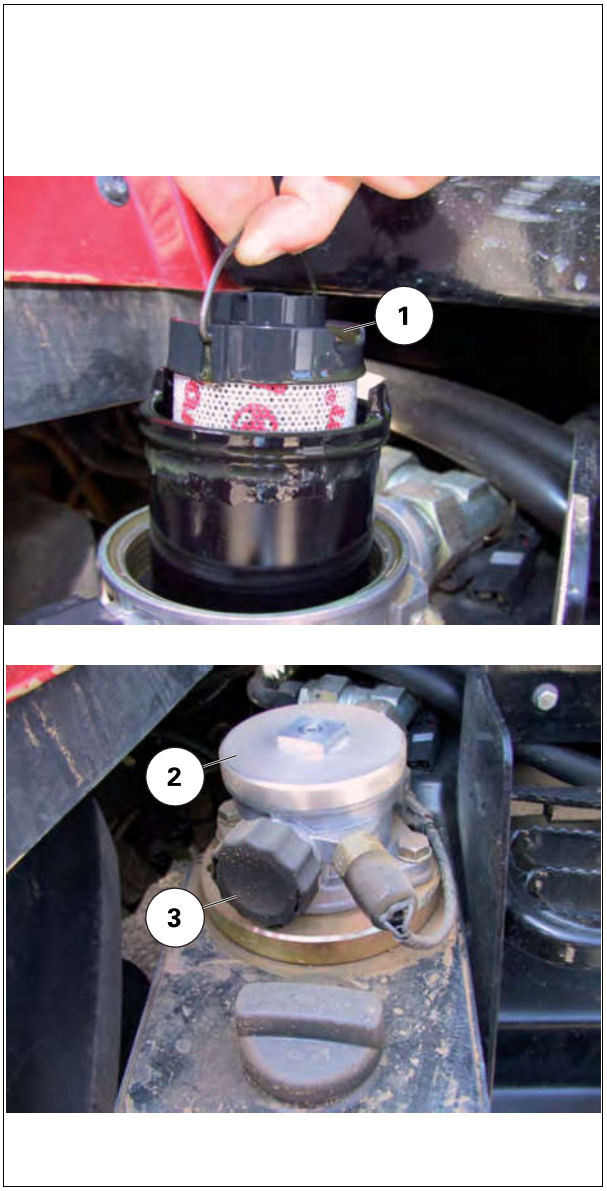


Fig. 5. I017876

Replacing the 15-micron return filter: Procedure

NOTE: *It is not necessary to drain the auxiliary oil tank.*

1. Loosen the cover plate (2).
2. Remove the filter element (1), allow it to drain fully and discard it.
3. Change the cover plate seal if necessary.
4. Fit a new filter element
   NOTE: *To prevent contamination of the filter element due to foreign material (mud, etc.), do not completely remove the protective plastic until it is fitted in place.*
5. Refit the cover plate and retighten it until it is locked in place.

Replacing the breather: Frequency

Replace the breather (3) every 400 hours.

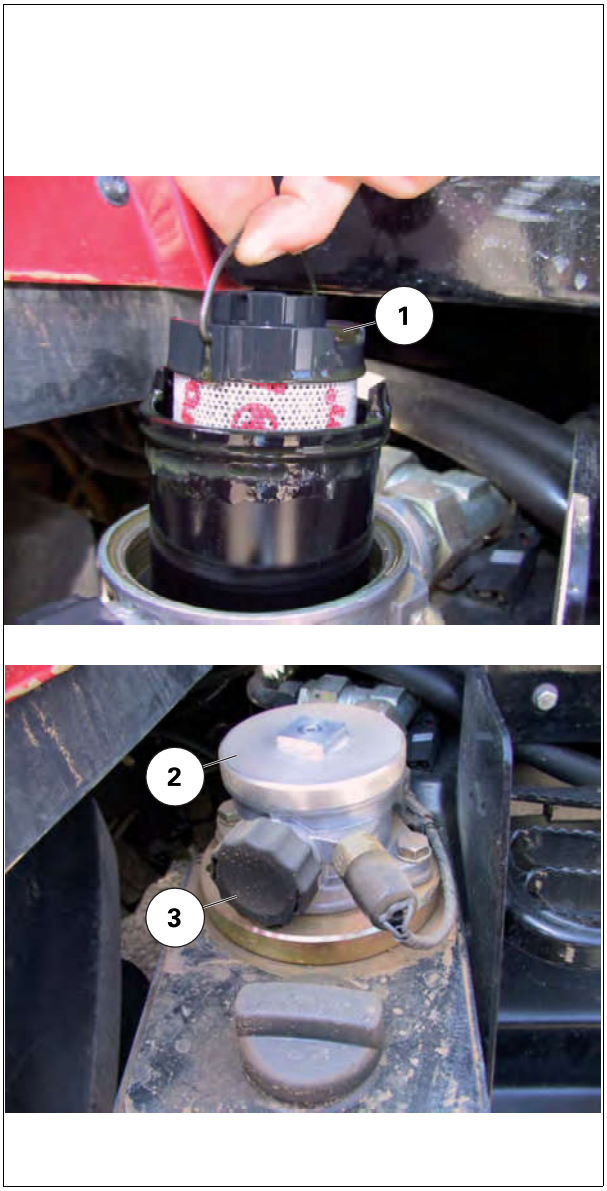


Fig. 6. I017876

4.11 Electrical equipment

4.11.1 Batteries

T001066

The tractor's electrical circuit operates on 12 V. The negative terminal is the earth.

Wipe the battery top and smear the terminals with liquid paraffin every 400 hours.

WARNING:

Batteries produce explosive gases. Sparks, flames, lit cigarettes or any flammable source must be kept at a distance. Wear suitable safety goggles when working near batteries.

4

4.11.2 Alternator

T001498

Ask your dealer or agent to check the alternator every 1200 hours or once a year.

IMPORTANT: *The alternator wiring must be disconnected before any arc welding is carried out on the tractor or on an implement which is attached to it.*
Do not disconnect or reconnect the battery cables when the engine is running.
Never operate the engine when the cable linking the alternator and battery is disconnected.
Do not attempt to connect any additional electrical equipment, as this may damage components of the existing electrical circuit.

4.11.3 Adjusting the headlights

T001070

Adjustment diagram

(A) Distance between the headlights and a wall or a screen
(B) Height from the center of the headlights to the ground
(C) Center-to-center distance between headlights
(D) Vertical offset

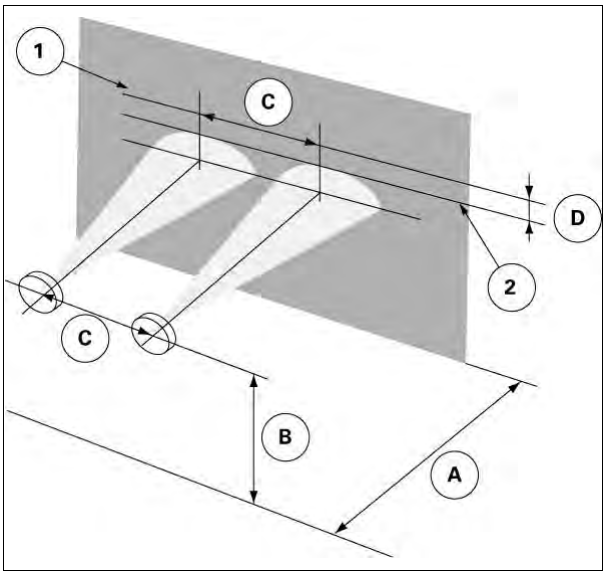


Fig. 1. I003563

Procedure

NOTE: *Do not let your fingers come into direct contact with the iodine bulbs.*

1. Position the tractor on a level surface, facing a wall or screen at a distance of 7,5 m (25 ft).
2. Draw a horizontal line (1) on the wall, corresponding to the height (B).
3. Draw two vertical lines on the wall corresponding to the width (C).
4. Trace a horizontal line (2) on the wall under line (1) at a distance of (D) = 0.1x(B).
5. Adjust each headlight individually by masking the opposite light. Align the upper edge of the lit zone with line (2); align the center of the lit zone with the corresponding vertical line traced in step 3.

4.11.4 Adjusting Xenon work lights (optional)

T001671

Certain precautions must be taken when replacing bulbs on models fitted with this option.

WARNING:

The electrical connection between the headlight and the light ballast is under HIGH VOLTAGE and must not be disconnected. Before replacing the xenon bulb, always turn the headlights off and disconnect from the power supply. Never touch the light terminal.

The light ballast is to be attached next to the headlight. Install the headlight and light ballast in a way that does not have an adverse effect on engine cooling.

Ensure that the power supply cable between the headlight and the ballast is not twisted by more than 90° and/or bent by a radius smaller than 20 mm (0.79 in).

The work lights are adjusted by screwing or unscrewing the 2 screws as required.

Fig. 2. I005478

4.11.5 Socket (ASAE)

T001069

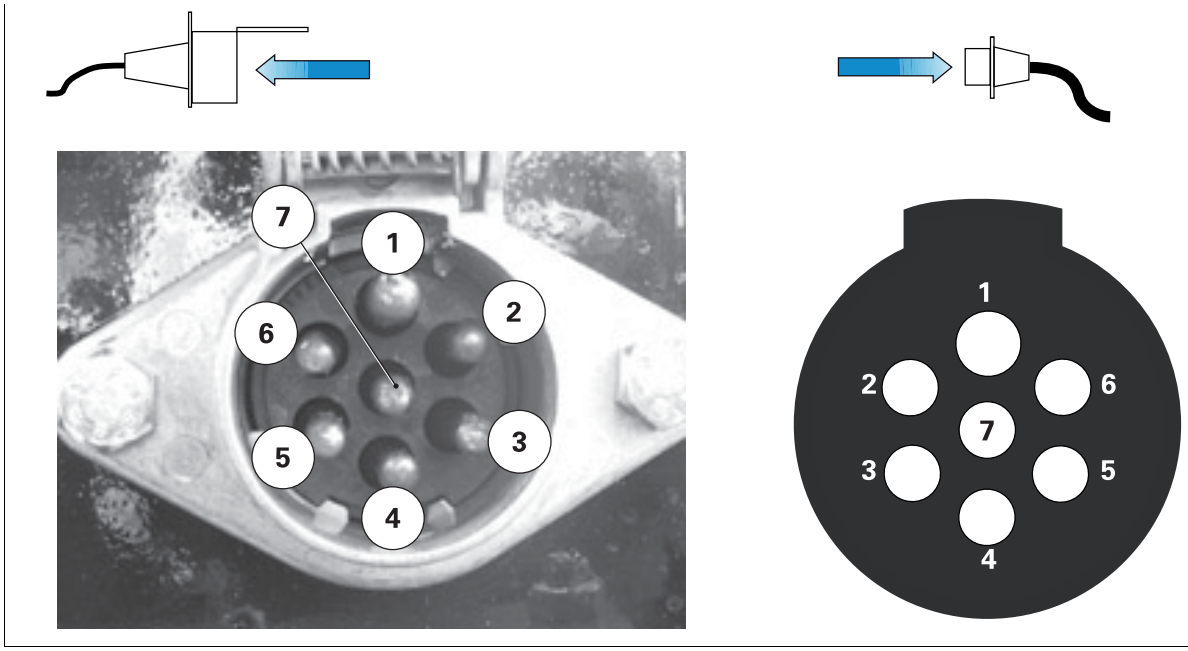


Fig. 3. I003555

Reference	SAE circuit	Maximum electrical charge
(1)	Earth	-
(2)	Rear work light	2x 55 W
(3)	Left-hand indicator and flashing warning light	4x 21 W
(4)	Stop lights	Not known
(5)	Right-hand indicator and flashing warning light	4x 21 W
(6)	Tail lights	4x 6 W
(7)	Accessories	20 A

4.11.6 Fuse box description

T006875

Functions of the fuse box elements

F	Fuse
SH	Shunt (shunts are fuses)
R	Relay
X	Connector

4

Fuse power and size

Amperage	Color
3	
5	
7.5	
10	
10	
15	
15	
20	
25	
30	
40	
50	
60	
70	

Fuse box

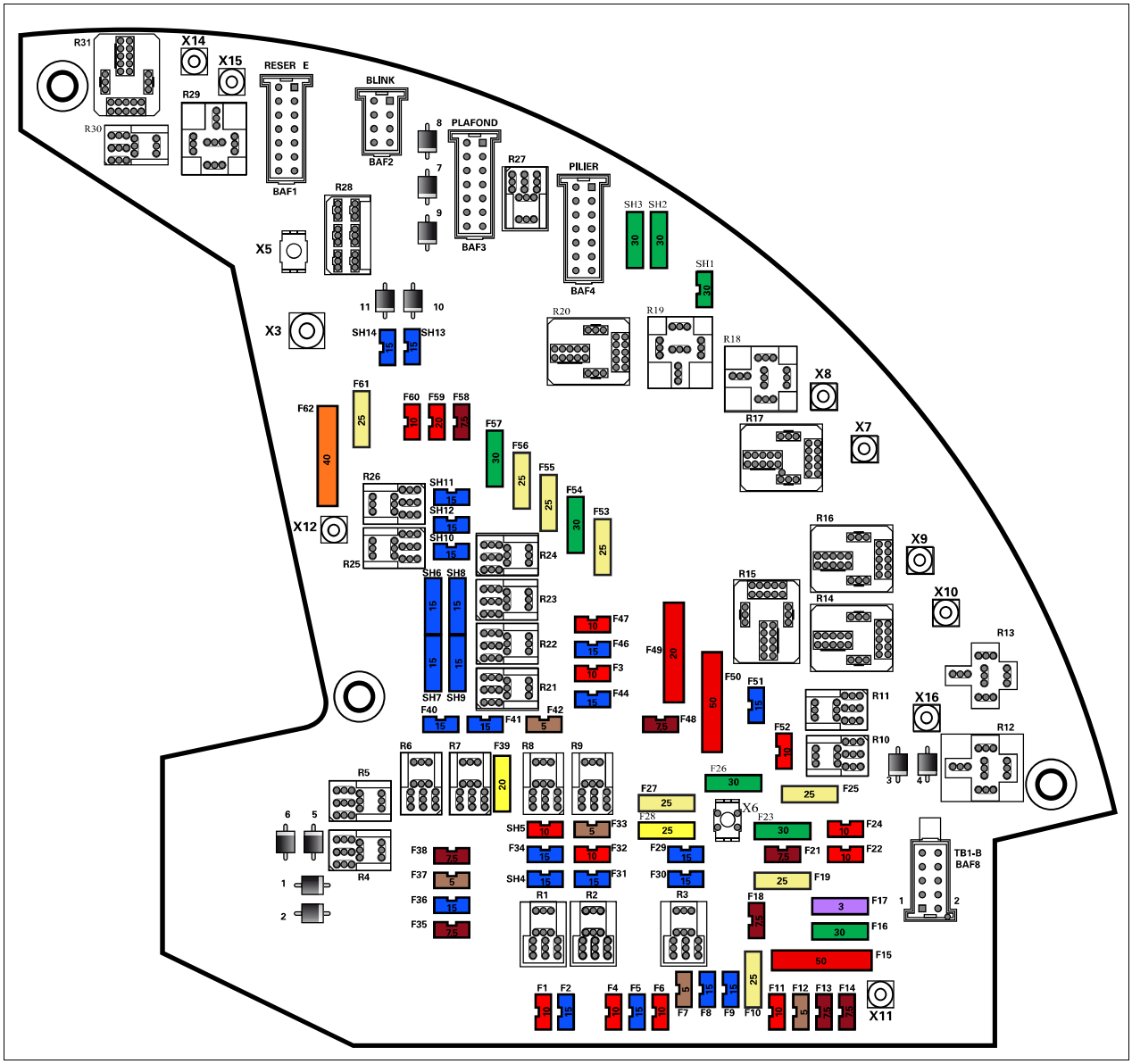


Fig. 4. I017277

Num.	Amp	Protected function
F1	10	Front right and rear left side lights, backlighting switches/console/cigarette lighter
F2	15	Indicators on roof
F3	10	Indicator on left-hand arm
F4	10	Instrument panel, gearbox/differential/4WD/cab PTO/creeper neutral switches
F5	15	Stop lights
F6	10	Transmission actuator
F7	5	Electronic injection control module (ECM), reversing light relay
F8	-	Not used
F9	15	Suspended front axle (optional)/front PTO (optional)
F10	25	Work lights on grille
F11	10	Air conditioning compressor
F12	5	Autotronic 4 controller
F13	7.5	Work lights module

Num.	Amp	Protected function
F14	7.5	Electric rear-view mirror (optional)
F16	30	Radar, hydraulic filter blockage, steering pressure sensor, braking sensor
F17	3	Brake switch
F18	7.5	Linkage/Diagnostics
F19	25	Pneumatic seat, fuel preheater
F21	7.5	Linkage
F22	10	Start switch, BoC/ToC switches, shuttle lever on steering wheel, throttle pedal position sensor, PTO switch lighting, armrest
F23	30	Cigarette lighter
F24	10	Indicator on right-hand arm
F25	25	Permanent, 12 V flashing warning light switch
F26	30	Power socket
F27	-	Not used
F28	25	Electronic injection control module (ECM)
F29	-	Not used
F30	15	Electronic injection control module (ECM), thermostart
F31	15	Electronic injection control module (ECM)
F32	-	Not used
F33	-	Not used
F34	15	Low beams
F35	7.5	Horn
F36	15	High beams
F37	5	Clutch neutral start switch
F38	7.5	Front left and rear right side lights, instrument panel backlighting
F39	20	Side light switch, main beams on hand rails
F40	15	Left-hand indicator
F41	15	Control buttons on joystick
F42	5	Electronic injection control module (ECM)
F44	15	Right-hand indicator
F46	15	Rear windshield wiper
F47	10	Radio
F48	7.5	Suspended front axle (optional)
F49	20	Cab suspension (optional)
F50	50	Air conditioning, radio
F51	15	Instrument panel
F52	10	Power socket
F53	25	Front windshield wiper
F54	30	Front work lights
F55	25	Rear work lights
F56	25	Work lights on hand rails and/or rear fenders
F57	30	Work lights on hand rails and/or step
F58	7.5	Work lights module
F59	20	Rotary beacon (optional)

Num.	Amp	Protected function
F60	10	Relay control + ignition on
F61	25	Flashing warning lights
F62	40	Autotronic 4 controller
SH3	30	Work lights on hand rails and steps
SH4	15	Without main beams on hand rails
SH5	10	Without main beams on hand rails
SH6	15	Indicators
SH8	15	Indicators
SH10	15	Indicators
SH12	15	Indicators
R2		Electronic injection control module (ECM)
R3		Electronic injection control module (ECM)
R4		Reversing lights (optional)
R5		Stop lights
R6		Control buttons on joystick (optional)
R7		Control buttons on joystick (optional)
R10		Power socket
R11		Transmission actuator
R12		Windshield wiper timer
R14		Air conditioning, radio
R15		+ ignition on
R16		Cab suspension (optional)
R17		Front work lights
R18		Rear work lights
R19		Work lights on hand rails and/or rear fenders
R20		Work lights on step
R21		Left-hand indicator
R22		Indicator on left-hand arm/stop light
R23		Indicator on left-hand fender
R24		Right-hand indicator
R25		Indicator on right-hand fender
R26		Indicator on right-hand arm/stop light
R28		Flashing warning light unit
R29		Manual air conditioning
R31		Work lights on grille

Rear view of fuse box

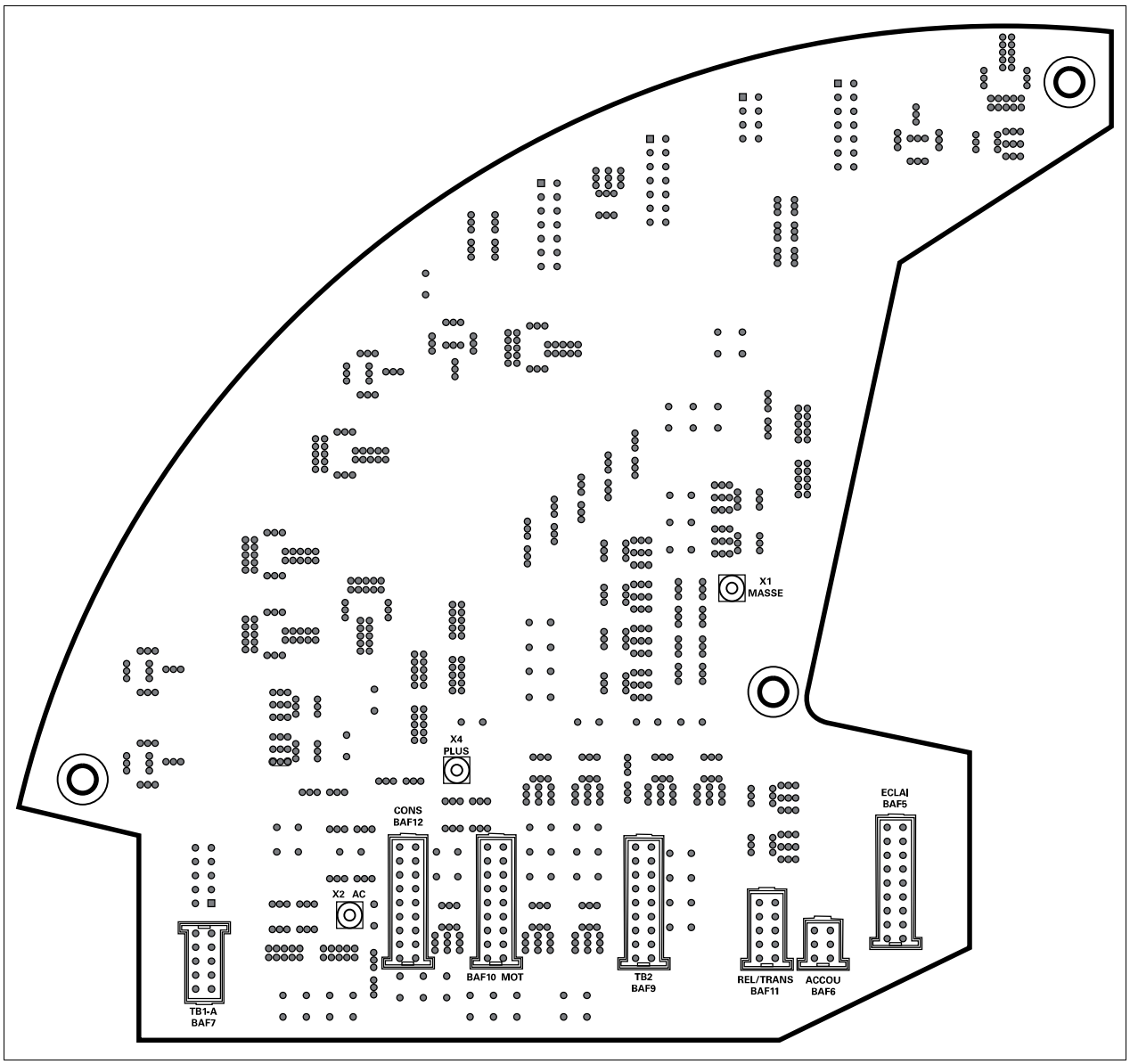


Fig. 5. I017278

4.11.7 Replacing fuses

T001805

Engine general power supply

A 225 A fuse located near the starter protects the engine power supply.

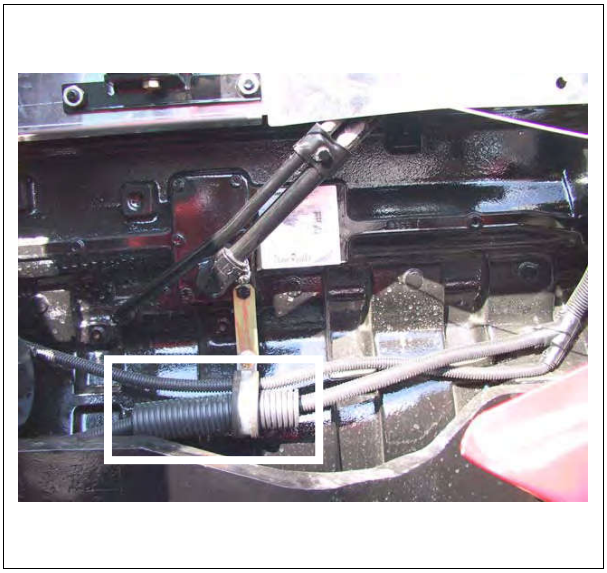


Fig. 6. I005785

Replacing the engine general power supply fuse

1. Remove the sheath bracket to release and take out the sheath (1).
2. Remove the protective sheath to access the fuse holder (2).

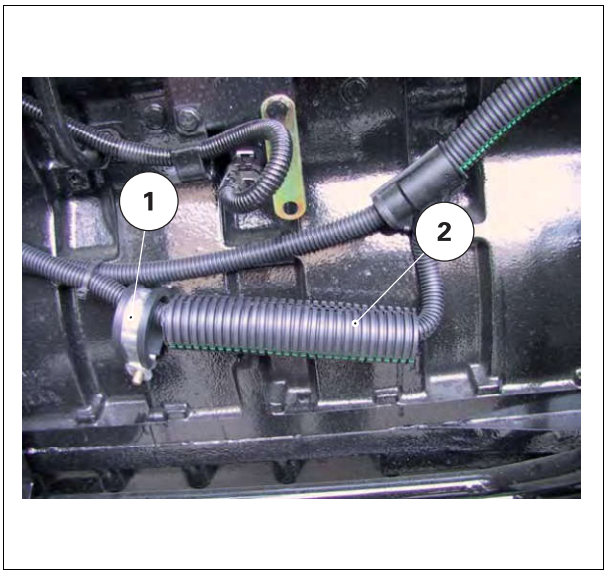


Fig. 7. I005786

3. Remove the two protective clips either side of the fuse (3) then open the fuse holder (4.)

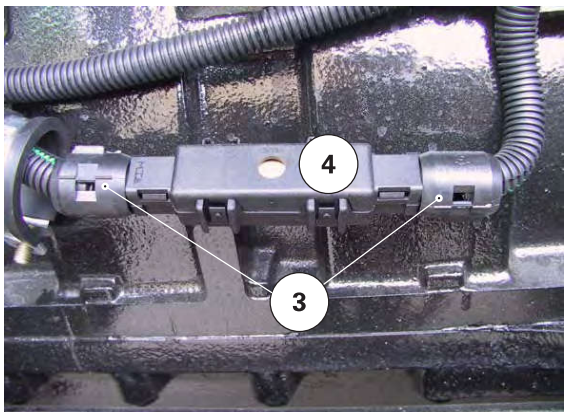


Fig. 8. I005787

4. Remove the 2 screws that hold the fuse (5) in place.
5. ***IMPORTANT:*** *Replace the fuse with another fuse of the same capacity.*

   Carry out the same operations in reverse order to reassemble.

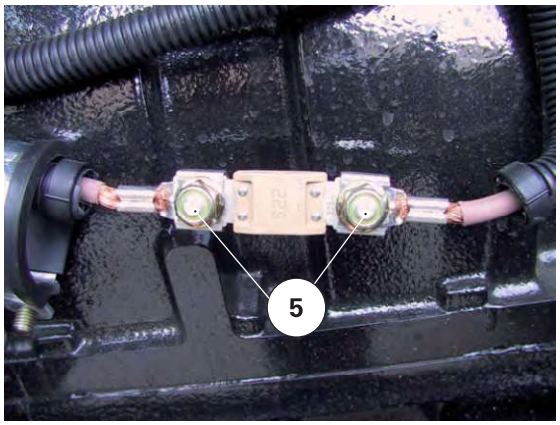


Fig. 9. I005788

Cab general power supply

A 150 A fuse located in the battery box protects the cab power supply.

Replacing the cab general power supply fuse

6. Remove the cover plate from the battery box to access the fuse (6).
7. Remove the protective sheath to access the holder.

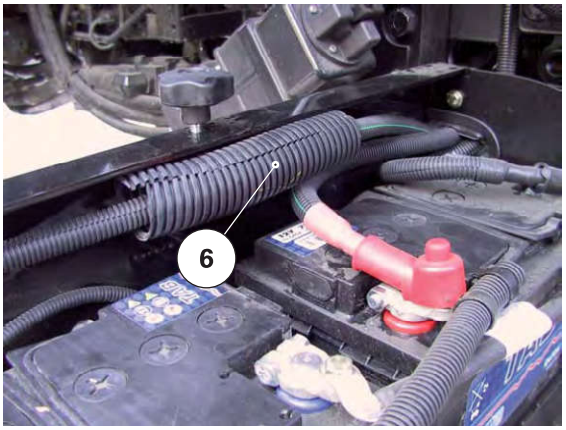


Fig. 10. I005789

8. Remove the two protective clips either side of the fuse (7) then open the fuse holder (8.)

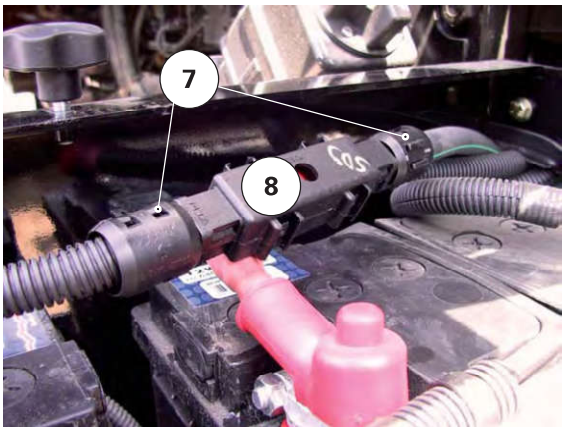


Fig. 11. I005790

9. Remove the 2 screws that hold the fuse (9) in place.
10. ***IMPORTANT:*** *Replace the fuse with another fuse of the same capacity.*

    Carry out the same operations in reverse order to reassemble.

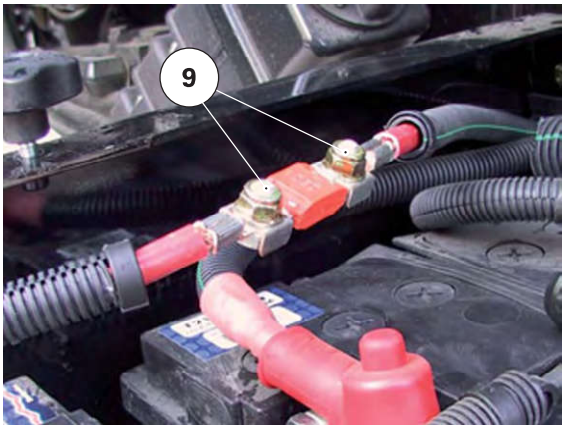


Fig. 12. I005791

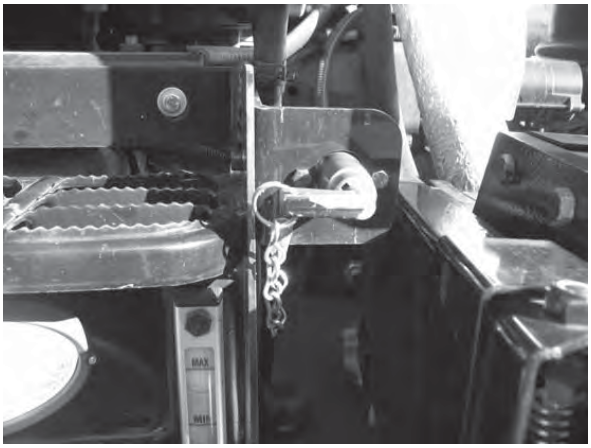
4.11.8 Battery isolator

T008059

This device (available as an option) is designed to cut the battery power supply in an emergency or during extended storage.

In an emergency

To cut the power supply, turn the handle counterclockwise.



I020223

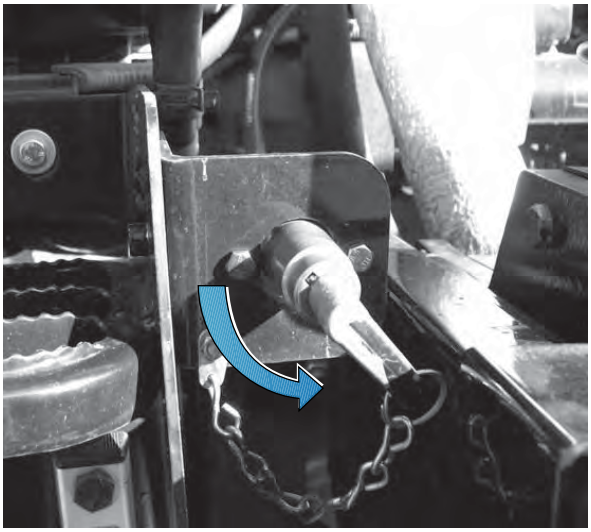


Fig. 13. I020224

Extended storage:

If the tractor is to remain out of service for an extended period, it is advisable to isolate the circuit to prevent the batteries from going flat.
To do so, turn the handle counterclockwise. Pull it towards you to remove it from its housing.

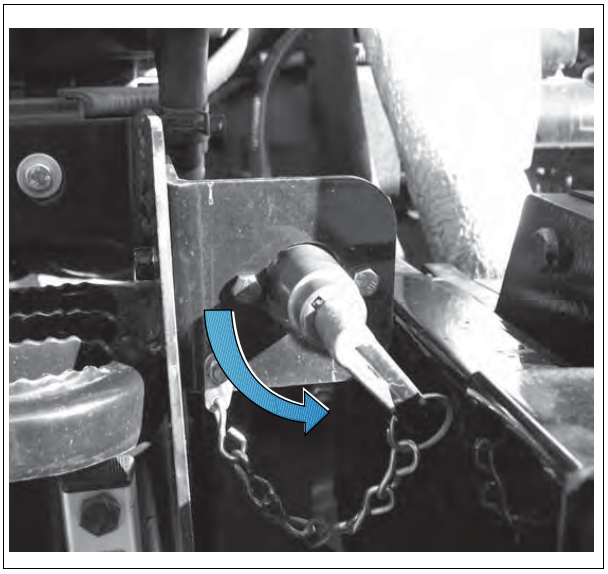


Fig. 14. I020225

4.11.9 Start-up assistance

T001801

General

A positive terminal (+) is located on the starter in order to connect an booster battery if the tractor batteries fail.

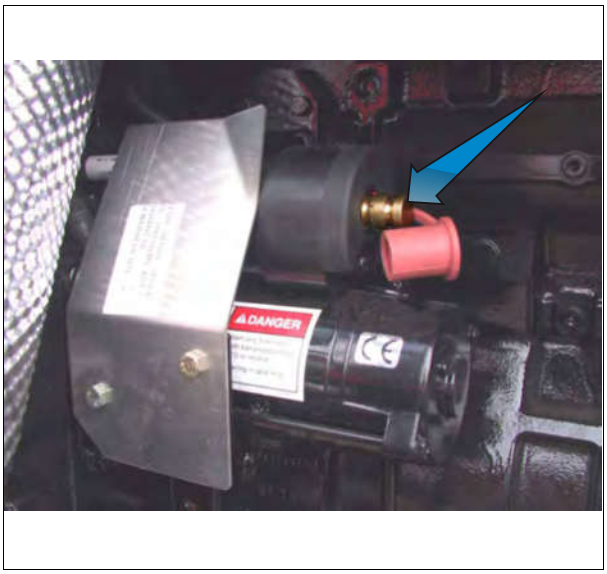


Fig. 15. I017867

Procedure

WARNING:
The booster battery voltage must be identical to that of the tractor batteries.

DANGER:
Only start the engine when sitting in the operator's seat.

1. Connect the positive end (+) of the booster battery to the terminal on the starter (*fig. 15*).
2. Connect the negative end (-) of the booster battery to the tractor earth.
3. Start the engine from the operator's seat following the start-up instructions.
4. When the engine is running, disconnect the wires from the booster battery in reverse order of connection.

4.11.10 Indicator light panel

T006987

Front PTO engaged indicator light 
Activating condition(s) – Indicator light permanently on = front PTO engaged

4

Suspended front axle engaged indicator light 	
Activating condition(s) – Indicator light permanently on = front axle suspension active – Indicator light flashing = front axle suspension error	
Cause(s)	**Solution(s)**
Front axle overloaded	Remove load from the front axle.
Calibration in progress or failed	Contact the dealer.
Error in one of the components	Contact the dealer.

High-pressure transmission oil filter blockage indicator light 	
Activating condition(s) – Indicator light permanently on = filter blocked, if transmission oil temperature is above 49 °C (120,20 °F)	
Cause(s)	**Solution(s)**
Filter blocked	Change the filter element.
Transmission oil polluted	Check the quality of the oil.
High-pressure transmission oil filter blockage switch faulty (error code T4150)	Check the blockage switch.

4WD front axle engaged indicator light 	
Activating condition(s) – Indicator light permanently on = 4WD front axle engaged – Indicator light flashing = 4WD front axle error	
Cause(s)	**Solution(s)**
Error in one of the components	Contact the dealer.

Differential lock indicator light

Activating condition(s)
- Indicator light permanently on = differential lock engaged
- Indicator light flashing slowly = differential lock in automatic mode
- Indicator light flashing quickly = differential lock error

Cause(s)	Solution(s)
Error in one of the components	Contact the dealer.

Rear PTO engaged indicator light

Activating condition(s)
- Indicator light flashing slowly = rear PTO pre-engaged
- Indicator light permanently on = rear PTO engaged
- Indicator light flashing quickly = rear PTO error

Cause(s)	Solution(s)
Error in one of the components	Contact the dealer.

Pressure light for brakes (ParkLock) and pneumatic brakes

Activating condition(s)
- Indicator light permanently on = pressure in pneumatic or hydraulic brake system too low

Cause(s)	Solution(s)
Pressure in pneumatic brake system lower than 4 bar (58,02 lbf/in² (PSI))	Check the condition of the air connection couplers with the implement, the implement braking system, and the pneumatic braking system.
Pressure in ParkLock brake system lower than 100 bar (1450.40 lbf/in² (PSI)), the ParkLock will not disengage.	Check the hydraulic brake system and disengage the ParkLock mechanically in order to move the tractor.
Braking pressure sensor faulty	Contact the dealer.

Engine oil pressure indicator light

Activating condition(s)
- Indicator light flashing slowly = engine oil pressure low - warning
- Indicator light permanently on = insufficient engine oil pressure (< 1 bar (14,50 lbf/in² (PSI))) - STOP warning
- Indicator light flashing with engine temperature indicator light, Grid Heater indicator light, and intake air temperature indicator light = engine error

Cause(s)	Solution(s)
Oil level too low	Stop the engine and check the oil level.
Problem in the lubrication system	Contact the dealer.
Engine error code	Contact the dealer.

4

Engine temperature indicator light	
	
Activating condition(s) – Indicator light permanently on = engine temperature greater than 106 °C (222.80 °F) – Indicator light flashing with engine oil pressure indicator light, Grid Heater indicator light and intake air temperature indicator light = engine error	
Cause(s)	**Solution(s)**
Coolant level low	Check the level.
Radiator blocked	Clean the radiator.
Engine error code	Contact the dealer.

Auxiliary hydraulic oil pressure indicator light	
	
Activating condition(s) – Indicator light permanently on = auxiliary hydraulic oil pressure below 25 bar (362,60 lbf/in² (PSI))	
Cause(s)	**Solution(s)**
Oil level too low	Check the auxiliary hydraulics oil level.
Hydraulic system components faulty	Check the tractor auxiliary hydraulic system.

Transmission oil pressure indicator light	
	
Activating condition(s) – Indicator light flashing = transmission oil pressure greater than 510 bar (7397,04 lbf/in² (PSI)) – Indicator light flashing = transmission oil pressure lower than 6 bar (87,02 lbf/in² (PSI))	
Cause(s)	**Solution(s)**
Transmission oil level too low	Check the transmission oil level.
Incorrect use of the transmission	Check that the transmission is in Tortoise range for field work.
Transmission module faulty	Contact the dealer.

Alternator charge light	
	
Activating condition(s) – Indicator light permanently on and engine speed greater than 1000 rpm = the alternator is not working	
Cause(s)	**Solution(s)**
Connection problems in the load circuit	Check the connections in the alternator load circuit back to the battery.
Belt slack or damaged	Check the condition and tension of the belt.
Battery faulty	Check the condition of the batteries.
Alternator faulty	Check the condition of the alternator.

Auxiliary hydraulic oil temperature indicator light

Activating condition(s)
- Indicator light permanently on = temperature above 95°C - stop the engine
- Indicator light flashing = temperature sensor disconnected or short-circuited

Cause(s)	Solution(s)
Radiators blocked	Clean the radiators.
Unusual use of the tractor auxiliary hydraulics	Check operation and connections with the implement.
Sensor disconnected or short-circuited	Check the connections and condition of the temperature sensor.

Auxiliary hydraulic oil filter blockage indicator light

Activating condition(s)
- Indicator light permanently on = filter blocked and auxiliary hydraulic oil temperature above 30 °C (86,00 °F)

Cause(s)	Solution(s)
Filter blocked	Change the filter element.
Auxiliary hydraulic oil polluted	Check the quality of the oil.
Faulty auxiliary hydraulic oil filter blockage sensor	Check the auxiliary hydraulic oil filter blockage sensor.

Parking brake indicator light

Activating condition(s)
- Indicator light permanently on = parking brake engaged

Grid Heater indicator light

Activating condition(s)
- Indicator light permanently on = Grid Heater activated: Preheating when the ignition key is in the preheating position, then post-heating for 40 seconds after the engine has started.
- Indicator light flashing with engine oil pressure indicator light, engine temperature indicator light, and intake air temperature indicator light = engine error

Cause(s)	Solution(s)
Engine error code	Contact the dealer.

Intake air temperature indicator light.	
	
Activating condition(s) – Indicator light permanently on = intake air temperature greater than 90 °C (194.00 °F) – Indicator light flashing with engine oil pressure indicator light, engine temperature indicator light, and Grid Heater indicator light = engine error	
Cause(s)	**Solution(s)**
Air filter blocked	Clean the air filter.
Intercooler blocked	Clean the intercooler.
Engine error code	Contact the dealer.

Engine air filter blockage indicator light	
	
Activating condition(s) – Indicator light permanently on = engine air filter blocked	
Cause(s)	**Solution(s)**
Air filter blocked	Clean the air filter.
Air filter blockage switch faulty	Check the air filter blockage switch.

4.12 Pressure washing

4.12.1 Pressure washing

T001076

When pressure washing, protect and do not direct the jet on the following components:

- Alternator
- Starter
- Radiator
- Front axle pivot pins
- Inspection cover
- Radar
- Harnesses and electrical connections
- Decals
- Cab door and window seals.

4.13 Storing your tractor

4.13.1 Storing your tractor

T001077

When the tractor is not used for several months, it is important to follow these precautions to provide proper protection:

1. If possible, it is preferable to protect the tractor from inclement weather by storing it under cover.
2. Each linkage must be fully lowered to avoid any pressure from building up in the rams.
3. Fill the tank with fuel to prevent any water from entering the fuel tank due to condensation.
4. Protect the air inlet and exhaust from humidity.
5. Remove the battery and store it in a dry location.
6. Clean the tractor.
7. Carry out the maintenance indicated in the Operator Instruction Book (oil changes, filters, etc.)
8. Lubricate all the points as indicated in the Operator Instruction Book.
9. Use grease to protect metal parts that are not painted (ram rods).
10. If possible, slacken off the engine accessories belt tensioner.
11. Chock the tractor so that the wheels are no longer in contact with the ground.
12. Use cloth to protect the instrument panel and coverings from direct sunlight (only if the tractor is stored outside).
13. Use water-resistant products (e.g., wax) to protect the tractor from moisture (only if the tractor is stored outside).

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5

5.1 General specifications

5.1.1 Model 7465

T007986

Engine	
Brand	SisuDiesel
Type	66 CTA
Number of cylinders	6

Transmission	
Gearbox type	Dyna-VT ML130
Rear axle type	HA130
Final drive type	HA130

Power take-off	
PTO type	Flanged shaft
Speeds	540/540ECO/1000

Front axle	
Front axle type	DANA 735 (fixed) DANA 735/612 (suspended)
Factor K	1.327

Hydraulics	
Hydraulic type	110 l/min (29.1 gal/min (US)) / Closed center
Number of spool valves	5 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard or High Visibility (optional)

5.1.2 Model 7475

T007987

Engine	
Brand	SisuDiesel
Type	66 CTA
Number of cylinders	6

Transmission	
Gearbox type	Dyna-VT ML130
Rear axle type	HA130
Final drive type	HA130

Power take-off	
PTO type	Flanged shaft
Speeds	540/540ECO/1000

Front axle	
Front axle type	DANA 735 (fixed) DANA 735/612 (suspended)
Factor K	1.327

Hydraulics	
Hydraulic type	110 l/min (29.1 gal/min (US)) / Closed center
Number of spool valves	5 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard or High Visibility (optional)

5.1.3 Model 7480

T007988

Engine	
Brand	SisuDiesel
Type	66 CTA
Number of cylinders	6

Transmission	
Gearbox type	Dyna-VT ML130
Rear axle type	HA130
Final drive type	HA130

Power take-off	
PTO type	Flanged shaft
Speeds	540/540ECO/1000

Front axle	
Front axle type	DANA 740 (fixed) DANA 740/609 (suspended)
Factor K	1.327

Hydraulics	
Hydraulic type	110 l/min (29.1 gal/min (US)) / Closed centre
Number of spool valves	5 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard or High Visibility (optional)

5.2 Cab

5.2.1 NOISE LEVELS (dBA) AT OPERATOR'S EARS

T006515

Noise levels (dBA) at operator's ears measured according to EEC Directive 77/311, Appendix 2

Model	Windows closed	Windows open
7485/7490/7495/7497/7499	68	78

5.3 Engine

5.3.1 Engine specifications

T007991

	7465	7475	7480			
Type	SisuDiesel 66 CTA					
Maximum PTO power HP SAE[1] (kW) at an engine speed of 2000 rpm	121 (90)	136 (101)	145 (108)			
Maximum torque	600 Nm (443 lbf ft)	676 Nm (499 lbf ft)	711 Nm (667 lbf ft)			
Number of cylinders	6	6	6			
Turbocharging	yes	yes	yes			
Intercooler	air/air	air/air	air/air			
Stroke	145 mm (5.7 in)	145 mm (5.7 in)	145 mm (5.7 in)			
Bore	108 mm (4.3 in)	108 mm (4.3 in)	108 mm (4.3 in)			
Displacement in cm^3	6600 cm^3 (402.73 in^3)	6600 cm^3 (402.73 in^3)	6600 cm^3 (402.73 in^3)			
Idle speed	800	800	800			
Maximum speed at no load	2260	2260	2260			
Lubrication	Gear pump at the bottom of the timing					
Valves	Controlled by camshaft, valve lifters and rocker arms					
Valve clearance - Cold or warm - Inlet	0,35 mm (0.01 in)	0,35 mm (0.01 in)	0,35 mm (0.01 in)			
Valve clearance - Cold or warm - Exhaust	0,35 mm (0.01 in)	0,35 mm (0.01 in)	0,35 mm (0.01 in)			

1. US unit

5.3.2 Fuel system and air filter

T007993

	7465-7475-7480
Water separator	1 water separator filter (fitted as an option)
Fuel filter	1 filter
Fuel prefilter	1 prefilter
Injection pump	Bosch CP1
Fuel injection type	Common Rail
Injector type	CRIN 2/8 holes
Cold weather starting	Grid heater with relay controlled by the ECU

5.3.3 COOLING

T001344

Type	Pressurized system
Regulation	Thermostat, 82 °C (180 °F) opening

Fan	Vistronic clutch fan
Belts	Poly-V ribbed belts
Water pump	Centrifugal, driven by gears

5.3.4 Tightening torques

T001345

Drain plug	35 Nm (25.81 lbf ft)

5.4 Transmission

5.4.1 Forward speed for all models with transmission in Stepshift mode

T001506

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Forward travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
1 F	1,7 km/h (1 mile/h)	4,0 km/h (2 mile/h)	4,6 km/h (3 mile/h)	0,8 km/h (0.5 mile/h)	1,8 km/h (1 mile/h)	2,1 km/h (1 mile/h)	0,1 km/h (0.06 mile/h)	0,2 km/h (0.1 mile/h)	0,2 km/h (0.1 mile/h)
2 F	1,9 km/h (1 mile/h)	4,4 km/h (3 mile/h)	5,1 km/h (3 mile/h)	0,9 km/h (0.6 mile/h)	2,2 km/h (1 mile/h)	2,5 km/h (2 mile/h)	0,2 km/h (0.1 mile/h)	0,4 km/h (0.2 mile/h)	0,5 km/h (0.3 mile/h)
3 F	2,1 km/h (1 mile/h)	5,0 km/h (3 mile/h)	5,8 km/h (4 mile/h)	1,1 km/h (0.7 mile/h)	2,6 km/h (2 mile/h)	3,0 km/h (2 mile/h)	0,3 km/h (0.2 mile/h)	0,6 km/h (0.4 mile/h)	0,7 km/h (0.4 mile/h)
4 F	2,4 km/h (1 mile/h)	5,6 km/h (3 mile/h)	6,5 km/h (4 mile/h)	1,3 km/h (0.8 mile/h)	3,0 km/h (2 mile/h)	3,5 km/h (2 mile/h)	0,3 km/h (0.2 mile/h)	0,8 km/h (0.5 mile/h)	0,9 km/h (0.6 mile/h)
5 F	2,7 km/h (2 mile/h)	6,4 km/h (4 mile/h)	7,4 km/h (5 mile/h)	1,4 km/h (0.9 mile/h)	3,4 km/h (2 mile/h)	3,9 km/h (2 mile/h)	0,4 km/h (0.2 mile/h)	1,0 km/h (0.6 mile/h)	1,2 km/h (0.7 mile/h)
6 F	3,0 km/h (2 mile/h)	7,2 km/h (4 mile/h)	8,3 km/h (5 mile/h)	1,6 km/h (1 mile/h)	3,8 km/h (2 mile/h)	4,4 km/h (3 mile/h)	0,5 km/h (0.3 mile/h)	1,2 km/h (0.7 mile/h)	1,4 km/h (0.9 mile/h)
7 F	3,5 km/h (2 mile/h)	8,2 km/h (5 mile/h)	9,5 km/h (6 mile/h)	1,8 km/h (1 mile/h)	4,2 km/h (3 mile/h)	4,9 km/h (3 mile/h)	0,6 km/h (0.4 mile/h)	1,4 km/h (0.9 mile/h)	1,6 km/h (1 mile/h)
8 F	4,0 km/h (2 mile/h)	9,4 km/h (6 mile/h)	10,9 km/h (7 mile/h)	2,0 km/h (1 mile/h)	4,8 km/h (3 mile/h)	5,6 km/h (3 mile/h)	0,7 km/h (0.4 mile/h)	1,6 km/h (1 mile/h)	1,9 km/h (1 mile/h)
9 F	4,5 km/h (3 mile/h)	10,8 km/h (7 mile/h)	12,5 km/h (8 mile/h)	2,3 km/h (1 mile/h)	5,4 km/h (3 mile/h)	6,3 km/h (4 mile/h)	0,8 km/h (0.5 mile/h)	1,8 km/h (1 mile/h)	2,1 km/h (1 mile/h)
10 F	5,2 km/h (3 mile/h)	12,4 km/h (8 mile/h)	14,4 km/h (9 mile/h)	2,6 km/h (2 mile/h)	6,2 km/h (4 mile/h)	7,2 km/h (4 mile/h)	0,8 km/h (0.5 mile/h)	2,0 km/h (1 mile/h)	2,3 km/h (1 mile/h)
11 F	6,0 km/h (4 mile/h)	14,2 km/h (9 mile/h)	16,4 km/h (10 mile/h)	2,9 km/h (2 mile/h)	7,0 km/h (4 mile/h)	8,1 km/h (5 mile/h)	0,9 km/h (0.6 mile/h)	2,2 km/h (1 mile/h)	2,5 km/h (2 mile/h)
12 F	6,8 km/h (4 mile/h)	16,2 km/h (10 mile/h)	18,8 km/h (12 mile/h)	3,4 km/h (2 mile/h)	8,0 km/h (5 mile/h)	9,3 km/h (6 mile/h)	1,0 km/h (0.6 mile/h)	2,4 km/h (1 mile/h)	2,8 km/h (2 mile/h)
13 F	7,7 km/h (5 mile/h)	18,4 km/h (11 mile/h)	21,3 km/h (13 mile/h)	3,9 km/h (2 mile/h)	9,2 km/h (6 mile/h)	10,7 km/h (7 mile/h)	1,2 km/h (0.7 mile/h)	2,8 km/h (2 mile/h)	3,2 km/h (2 mile/h)

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Forward travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
14 F	8,8 km/h (5 mile/h)	21,0 km/h (13 mile/h)	24,3 km/h (15 mile/h)	4,5 km/h (3 mile/h)	10,6 km/h (7 mile/h)	12,3 km/h (8 mile/h)	1,4 km/h (0.9 mile/h)	3,4 km/h (2 mile/h)	3,9 km/h (2 mile/h)
15 F	10,0 km/h (6 mile/h)	23,8 km/h (15 mile/h)	27,6 km/h (17 mile/h)	5,1 km/h (3 mile/h)	12,2 km/h (8 mile/h)	14,1 km/h (9 mile/h)	1,7 km/h (1 mile/h)	4,0 km/h (2 mile/h)	4,6 km/h (3 mile/h)
16 F	11,4 km/h (7 mile/h)	27,0 km/h (17 mile/h)	31,3 km/h (19 mile/h)	5,9 km/h (4 mile/h)	14,0 km/h (9 mile/h)	16,2 km/h (10 mile/h)	2,0 km/h (1 mile/h)	4,8 km/h (3 mile/h)	5,6 km/h (3 mile/h)
17 F	12,9 km/h (8 mile/h)	30,6 km/h (19 mile/h)	35,4 km/h (22 mile/h)	6,7 km/h (4 mile/h)	16,0 km/h (10 mile/h)	18,5 km/h (11 mile/h)	2,4 km/h (1 mile/h)	5,6 km/h (3 mile/h)	6,5 km/h (4 mile/h)
18 F	14,7 km/h (9 mile/h)	34,8 km/h (22 mile/h)	40,3 km/h (25 mile/h)	7,7 km/h (5 mile/h)	18,2 km/h (11 mile/h)	21,1 km/h (13 mile/h)	2,7 km/h (2 mile/h)	6,4 km/h (4 mile/h)	7,4 km/h (5 mile/h)
19 F	16,7 km/h (10 mile/h)	39,6 km/h (25 mile/h)	45,9 km/h (29 mile/h)	8,8 km/h (5 mile/h)	20,8 km/h (13 mile/h)	24,1 km/h (15 mile/h)	3,0 km/h (2 mile/h)	7,2 km/h (4 mile/h)	8,3 km/h (5 mile/h)
20 F	18,9 km/h (12 mile/h)	45,0 km/h (28 mile/h)	52,1 km/h (32 mile/h)	10,0 km/h (6 mile/h)	23,8 km/h (15 mile/h)	27,6 km/h (17 mile/h)	3,5 km/h (2 mile/h)	8,4 km/h (5 mile/h)	9,7 km/h (6 mile/h)
21 F	21,5 km/h (13 mile/h)	51,0 km/h (32 mile/h)	53,0 km/h (33 mile/h)	11,5 km/h (7 mile/h)	27,4 km/h (17 mile/h)	31,7 km/h (20 mile/h)	4,2 km/h (3 mile/h)	10,0 km/h (6 mile/h)	11,6 km/h (7 mile/h)

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Reverse travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
1 R	1,7 km/h (1 mile/h)	4,0 km/h (2 mile/h)	4,6 km/h (3 mile/h)	0,8 km/h (0.5 mile/h)	1,8 km/h (1 mile/h)	2,1 km/h (1 mile/h)	0,1 km/h (0.06 mile/h)	0,2 km/h (0.1 mile/h)	0,2 km/h (0.1 mile/h)
2 R	1,9 km/h (1 mile/h)	4,4 km/h (3 mile/h)	5,1 km/h (3 mile/h)	0,9 km/h (0.6 mile/h)	2,2 km/h (1 mile/h)	2,5 km/h (2 mile/h)	0,2 km/h (0.1 mile/h)	0,4 km/h (0.2 mile/h)	0,5 km/h (0.3 mile/h)
3 R	2,1 km/h (1 mile/h)	5,0 km/h (3 mile/h)	5,8 km/h (4 mile/h)	1,1 km/h (0.7 mile/h)	2,6 km/h (2 mile/h)	3,0 km/h (2 mile/h)	0,3 km/h (0.2 mile/h)	0,6 km/h (0.4 mile/h)	0,7 km/h (0.4 mile/h)
4 R	2,4 km/h (1 mile/h)	5,6 km/h (3 mile/h)	6,5 km/h (4 mile/h)	1,3 km/h (0.8 mile/h)	3,0 km/h (2 mile/h)	3,5 km/h (2 mile/h)	0,3 km/h (0.2 mile/h)	0,8 km/h (0.5 mile/h)	0,9 km/h (0.6 mile/h)

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Reverse travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
5 R	2,7 km/h (2 mile/h)	6,4 km/h (4 mile/h)	7,4 km/h (5 mile/h)	1,4 km/h (0.9 mile/h)	3,4 km/h (2 mile/h)	3,9 km/h (2 mile/h)	0,4 km/h (0.2 mile/h)	1,0 km/h (0.6 mile/h)	1,2 km/h (0.7 mile/h)
6 R	3,0 km/h (2 mile/h)	7,2 km/h (4 mile/h)	8,3 km/h (5 mile/h)	1,6 km/h (1 mile/h)	3,8 km/h (2 mile/h)	4,4 km/h (3 mile/h)	0,5 km/h (0.3 mile/h)	1,2 km/h (0.7 mile/h)	1,4 km/h (0.9 mile/h)
7 R	3,5 km/h (2 mile/h)	8,2 km/h (5 mile/h)	9,5 km/h (6 mile/h)	1,8 km/h (1 mile/h)	4,2 km/h (3 mile/h)	4,9 km/h (3 mile/h)	0,6 km/h (0.4 mile/h)	1,4 km/h (0.9 mile/h)	1,6 km/h (1 mile/h)
8 R	4,0 km/h (2 mile/h)	9,4 km/h (6 mile/h)	10,9 km/h (7 mile/h)	2,0 km/h (1 mile/h)	4,8 km/h (3 mile/h)	5,6 km/h (3 mile/h)	0,7 km/h (0.4 mile/h)	1,6 km/h (1 mile/h)	1,9 km/h (1 mile/h)
9 R	4,5 km/h (3 mile/h)	10,8 km/h (7 mile/h)	12,5 km/h (8 mile/h)	2,3 km/h (1 mile/h)	5,4 km/h (3 mile/h)	6,3 km/h (4 mile/h)	0,8 km/h (0.5 mile/h)	1,8 km/h (1 mile/h)	2,1 km/h (1 mile/h)
10 R	5,2 km/h (3 mile/h)	12,4 km/h (8 mile/h)	14,4 km/h (9 mile/h)	2,6 km/h (2 mile/h)	6,2 km/h (4 mile/h)	7,2 km/h (4 mile/h)	0,8 km/h (0.5 mile/h)	2,0 km/h (1 mile/h)	2,3 km/h (1 mile/h)
11 R	6,0 km/h (4 mile/h)	14,2 km/h (9 mile/h)	16,4 km/h (10 mile/h)	2,9 km/h (2 mile/h)	7,0 km/h (4 mile/h)	8,1 km/h (5 mile/h)	0,9 km/h (0.6 mile/h)	2,2 km/h (1 mile/h)	2,5 km/h (2 mile/h)
12 R	6,8 km/h (4 mile/h)	16,2 km/h (10 mile/h)	18,8 km/h (12 mile/h)	3,4 km/h (2 mile/h)	8,0 km/h (5 mile/h)	9,3 km/h (6 mile/h)	1,0 km/h (0.6 mile/h)	2,4 km/h (1 mile/h)	2,8 km/h (2 mile/h)
13 R	7,7 km/h (5 mile/h)	18,4 km/h (11 mile/h)	21,3 km/h (13 mile/h)	3,9 km/h (2 mile/h)	9,2 km/h (6 mile/h)	10,7 km/h (7 mile/h)	1,2 km/h (0.7 mile/h)	2,8 km/h (2 mile/h)	3,2 km/h (2 mile/h)
14 R	8,8 km/h (5 mile/h)	21,0 km/h (13 mile/h)	24,3 km/h (15 mile/h)	4,5 km/h (3 mile/h)	10,6 km/h (7 mile/h)	12,3 km/h (8 mile/h)	1,4 km/h (0.9 mile/h)	3,4 km/h (2 mile/h)	3,9 km/h (2 mile/h)
15 R	10,0 km/h (6 mile/h)	23,8 km/h (15 mile/h)	27,6 km/h (17 mile/h)	5,1 km/h (3 mile/h)	12,2 km/h (8 mile/h)	14,1 km/h (9 mile/h)	1,7 km/h (1 mile/h)	4,0 km/h (2 mile/h)	4,6 km/h (3 mile/h)
16 R				5,9 km/h (4 mile/h)	14,0 km/h (9 mile/h)	16,2 km/h (10 mile/h)	2,0 km/h (1 mile/h)	4,8 km/h (3 mile/h)	5,6 km/h (3 mile/h)
17 R				6,7 km/h (4 mile/h)	16,0 km/h (10 mile/h)	18,5 km/h (11 mile/h)	2,4 km/h (1 mile/h)	5,6 km/h (3 mile/h)	6,5 km/h (4 mile/h)

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Reverse travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
18 R				7,7 km/h (5 mile/h)	18,2 km/h (11 mile/h)	21,1 km/h (13 mile/h)	2,7 km/h (2 mile/h)	6,4 km/h (4 mile/h)	7,4 km/h (5 mile/h)
19 R							3,0 km/h (2 mile/h)	7,2 km/h (4 mile/h)	8,3 km/h (5 mile/h)
20 R							3,5 km/h (2 mile/h)	8,4 km/h (5 mile/h)	9,7 km/h (6 mile/h)
21 R							4,2 km/h (3 mile/h)	10,0 km/h (6 mile/h)	11,6 km/h (7 mile/h)

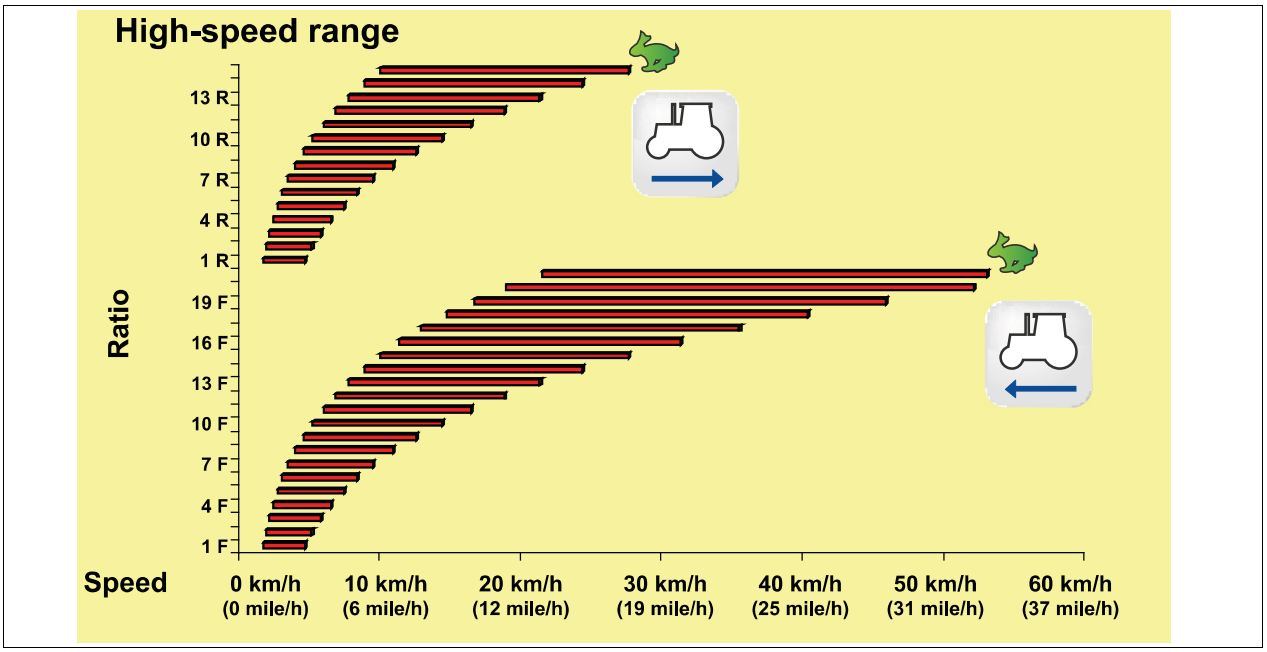

Fig. 1. I004784

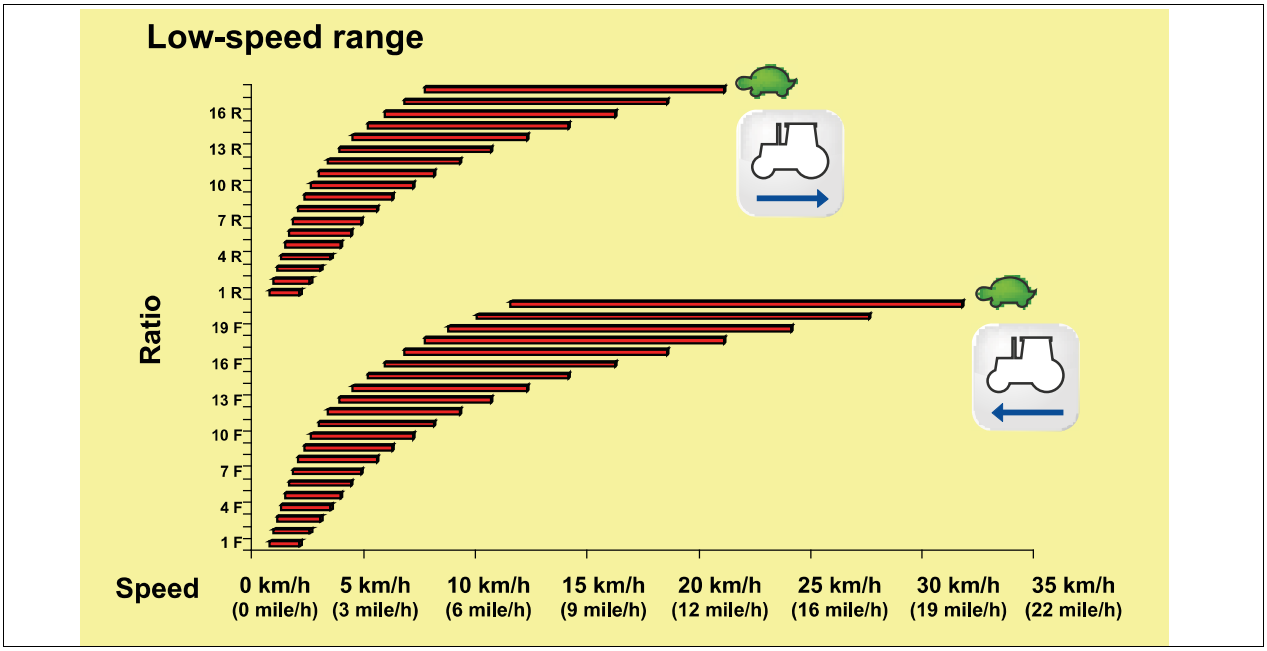

Fig. 2. I004787

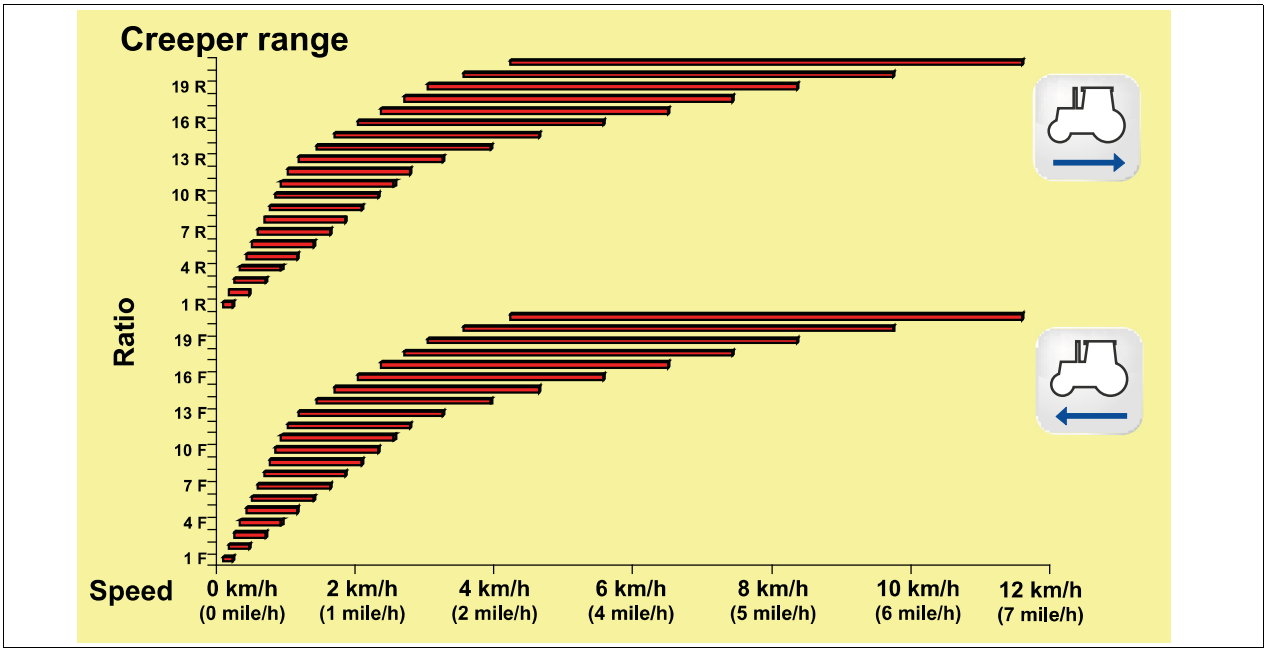

Fig. 3. I006018

5.4.2 Gearbox

T001385

Dyna-VT	Gearbox with continuous variation in forward and reverse positions
Reverse shuttle	Power Shuttle
Filtration	1 x 150-micron suction strainer, 1 x 15-micron high-pressure filter

Dyna-VT	Gearbox with continuous variation in forward and reverse positions
Reverse shuttle	Power Shuttle
Filtration	1 x 150-micron suction strainer, 1 x 15-micron high-pressure filter

5.4.3 Final drives

T006518

Drives	Epicyclic, located in the rear axle housings.
Reduction ratio:	– HA130: 8.2:1

5.4.4 Rear differential lock

T001387

Type	Multidisc
Order	Hydraulic, with electric control

5.5 Brakes

5.5.1 Brake technical specifications

T006519

Type	Oil-immersed multidiscs, diameter 223,5 mm (8.81 in) (5 discs per wheel)
Operation	Hydraulic with automatic adjustment
Parking brake	Electrohydraulic control acting directly on the brake discs
Trailer brake	Hydraulic braking controlled by hydraulic spool valve

5.6 Front axle and steering

5.6.1 Four-wheel drive front axle

T003366

Clutch mechanism	Multidisc with electrohydraulic control via button in cab
Differential lock	Multidisc with electrohydraulic control via button in cab
Gear reduction ratios	7465-7475 DANA 735: 13.846 7480 DANA 740: 13.846

5.6.2 Steering

T006951

5

Steering type	Hydrostatic, controlled by a steering unit		
Assistance	Hydraulics		
Track width	Slotted rim, 8 settings: – 1856 mm (73.13 in) – 1752 mm (69.03 in) – 1652 mm (65.09 in) – 1548 mm (60.99 in) – 1948 mm (76.75 in) – 2052 mm (80.85 in) – 2152 mm (84.79 in) – 2256 mm (88.89 in) Welded rim, 2 settings: – 1842 mm (72.57 in) – 1972 mm (77.70 in)		
Maximum inner steering angle	55°		
Turning radius *fig. 1*	Tire	Adjusting the front wheel track width	Turning radius R
	380/85R30	1800	5010 mm (197.39 in)
	480/70R30	1800	5280 mm (208.03 in)
	540/65R30	1800	5530 mm (217.88 in)
	600/65R28	1800	5750 mm (226.55 in)
	600/60R30	1800	5910 mm (232.85 in)
	600/70R28	1800	6000 mm (236.40 in)
	620/75R30	1800	7210 mm (284.07 in)
	600/60R30	2000	5110 mm (201.33 in)
	380/85R30	2000	5110 mm (201.33 in)
	540/65R30	2000	5110 mm (201.33 in)
	600/65R28	2000	5110 mm (201.33 in)
	480/70R30	2000	5110 mm (201.33 in)
	600/70R28	2000	5380 mm (211.97 in)
	620/75R30	2000	5940 mm (234.04 in)
	380/85R34	2260	5850 mm (230.49 in)
	380/85R34	2286	6290 mm (247.83 in)

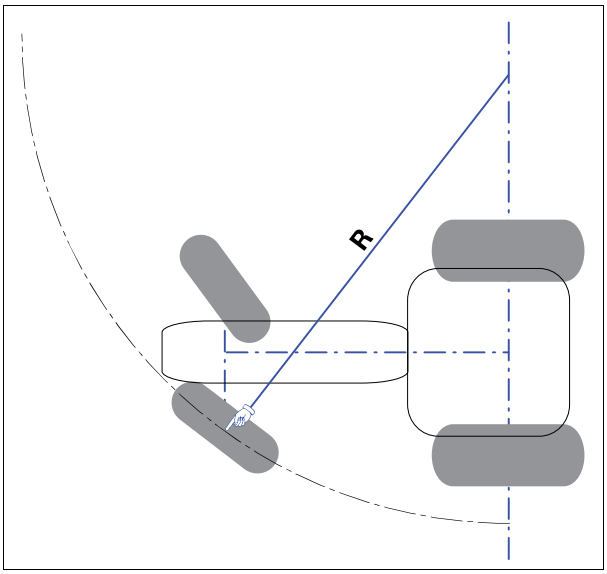

Fig. 1. I008691

5.7 Power take-off

5.7.1 Specifications

T006521

Front power take-off specifications	
Number of selections possible for front PTO	1000 tr/min
Maximum permissible power	99 kW
Maximum permissible input torque	497 Nm (367 lbf ft)
Maximum permissible output torque	955 Nm (704 lbf ft)
Rotational direction	Clockwise (viewed from the front of the tractor)
Engine speed for 1000 rpm PTO	2040 rpm
Ratio	1.92
Clutch type	Hydraulics
Splined shaft type	21 splines, diameter 35 mm (1.4 in) (1" 3/8)

Rear power take-off	
Power take-off	Proportional to engine speed.
Clutch	Electrohydraulic
Type of shaft	Flanged
Number of splines	– 6 or 21 splines: shaft diameter 35 mm (1.4 in) – 20 splines: shaft diameter 45 mm (1.8 in)
PTO speed	540 rpm at 2065 engine rpm; 1000 rpm at 2034 engine rpm
Economy PTO	540E speed obtained at 1590 engine rpm
Maximum theoretical power that can be transmitted by the PTO output shaft	– 540/540Eco version with 6 or 21-spline shaft: 74 kW – 540/540Eco version with 20-spline shaft: 7465: 89 kW 7475: 100 kW 7480/7485/7490/7495/7497/7499: 118 kW – 1000 rpm version with 21-spline shaft: 7465: 89 kW 7475: 100 kW 7480: 107 kW 7485: 122 kW 7490: 129 kW 7495/7497/7499: 132 kW – 1000 rpm version with 20-spline shaft: 7465: 89 kW 7475: 100 kW 7480: 107 kW 7485: 122 kW 7490: 129 kW 7495: 136 kW 7497: 148 kW 7499: 155 kW

5.7.2 Tightening torques

T001394

Rear PTO shaft retaining screw	69 Nm (51 lbf ft)

5.8 Linkage

5.8.1 Rear linkage

T008010

Type	– 3-point – Category 3 – Rams 90 mm (3.5 in) on the left; 100 mm (3.9 in) à droite
Capacity [1] at ball joints over the entire length of travel	5244 kg (11561 lb)
Maximum capacity [1] at ball joints	7194 kg (15860 lb)

1. Variable capacity according to lift rod position and linkage type.

5.9 Auxiliary hydraulics

5.9.1 Load Sensing system 110 l/min (29.04 gal/min (US)) or 150 l/min (39.60 gal/min (US))

T006528

Closed center hydraulic system with flow and pressure control.	Flow rate 110 l/min (29.04 gal/min (US)) or at an engine speed of 2200 rpm, maximum pressure 150 l/min (39.60 gal/min (US))
Maximum volume of oil that can be used	40 l (10.56 gal (US))

5.10 Electrical equipment

5.10.1 Electrical equipment

T006523

Voltage	12 volts. Negative earth
Batteries	2 x 420 A maintenance-free batteries
Alternator	120 A - 150 A or 175 A
Roof light	10 W
Indicators, sidelights on hand rail:	10 W - 21 W
Brake lights, side lights on fender	21 W - 5 W
High beams on hand rails	H4 - 60/55 W
High beams on hand rail, low position	H3 - 55 W
Work lights on hand rail	H3 - 55 W
Work lights on roof:	H3 - 55 W
Work lights on step	H3 - 55 W
Number plate lights on roof	5 W
Back-up lights:	21 W
Rotary beacon	H1 - 55 W

5.11 Wheels and tires

5.11.1 Rim

T001347

Four-wheel drive front axle	Welded steel rim/disc (2 settings depending on the position of the rim on the hub). Mobile steel rim/disc (8 settings depending on the position of the disc on the rim and on the hub).
Rear wheels	Welded steel rims/disc (setting depending on the position on the straight shaft). Steel rims/cast iron disc (setting of the disc position on the rim and depending on the position on the straight shaft).

5.11.2 Tires

T001348

On an unequal 4-wheel drive tractor, the front wheels are smaller than the rear wheels, so they have to turn slightly faster than the rear wheels.
The synchronization ratio K specifies the difference between the rotation of the front and rear wheels.
For total compatibility between the front and rear tires, apply the synchronization ratio K (the value is displayed on the name plate).

The following formula is used to check that your choice of front/rear tire is correct.
The result should be between 1 and 1.05.
Calculation formula:
1<K x (rolling circumference of the front tire/rolling circumference of the rear tire)<1.05

5.11.3 Tightening torques

T001738

Front axle

	Disc on hubs	Rim on disc with lugs	Rim on disc with slots	Rim on disc, fixed cast iron
2WD	160 Nm (118 lbf ft) to 210 Nm (155 lbf ft)	-	-	-
4WD	– M18: 400 Nm (295 lbf ft) to 450 Nm (332 lbf ft) – M22: 640 Nm (472 lbf ft) to 680 Nm (502 lbf ft)	210 Nm (155 lbf ft) to 250 Nm (184 lbf ft)	300 Nm (221 lbf ft) to 320 Nm (236 lbf ft)	-

Rear axle

	Disc on hubs	Rim on disc with lugs	Rim on disc with slots	Rim on disc, fixed cast iron
Flanged shaft	400 Nm (295 lbf ft) to 450 Nm (332 lbf ft)	-	-	250 Nm (184 lbf ft) to 350 Nm (258 lbf ft)
Straight shaft	– Hub on cone: 350 Nm (258 lbf ft) to 460 Nm (339 lbf ft) – Steel disc on hub: 640 Nm (472 lbf ft) to 680 Nm (502 lbf ft)	-	-	-

5.12 Capacities and dimensions

5.12.1 Capacities

T008038

Type	Model	Displacement
Fuel tank	All	370 l (97.8 gal (US))
Cooling system	All	29,5 l (7.8 gal (US))
Engine sump	All	19,5 l (5.2 gal (US))
Auxiliary hydraulics	All	100 l (26.4 gal (US))
Transmission/rear axle	All	58 l (15.3 gal (US))
Linkage cover plate	All	0,5 l (0.1 gal (US))
Zuidberg front power take-off	All	3,3 l (0.9 gal (US))
Fixed or suspended front axle	All	9 l (2.4 gal (US))
Front axle front final drive 735	7465 - 7475	0,8 l (0.2 gal (US))
Front axle front final drive 740	7480	2 l (0.5 gal (US))
Refrigerant fluid R134A	All	1200 g (42.32 oz)
Windshield washer bottle	All	4 l (1.1 gal (US))

5.12.2 Dimensions and weights

T008012

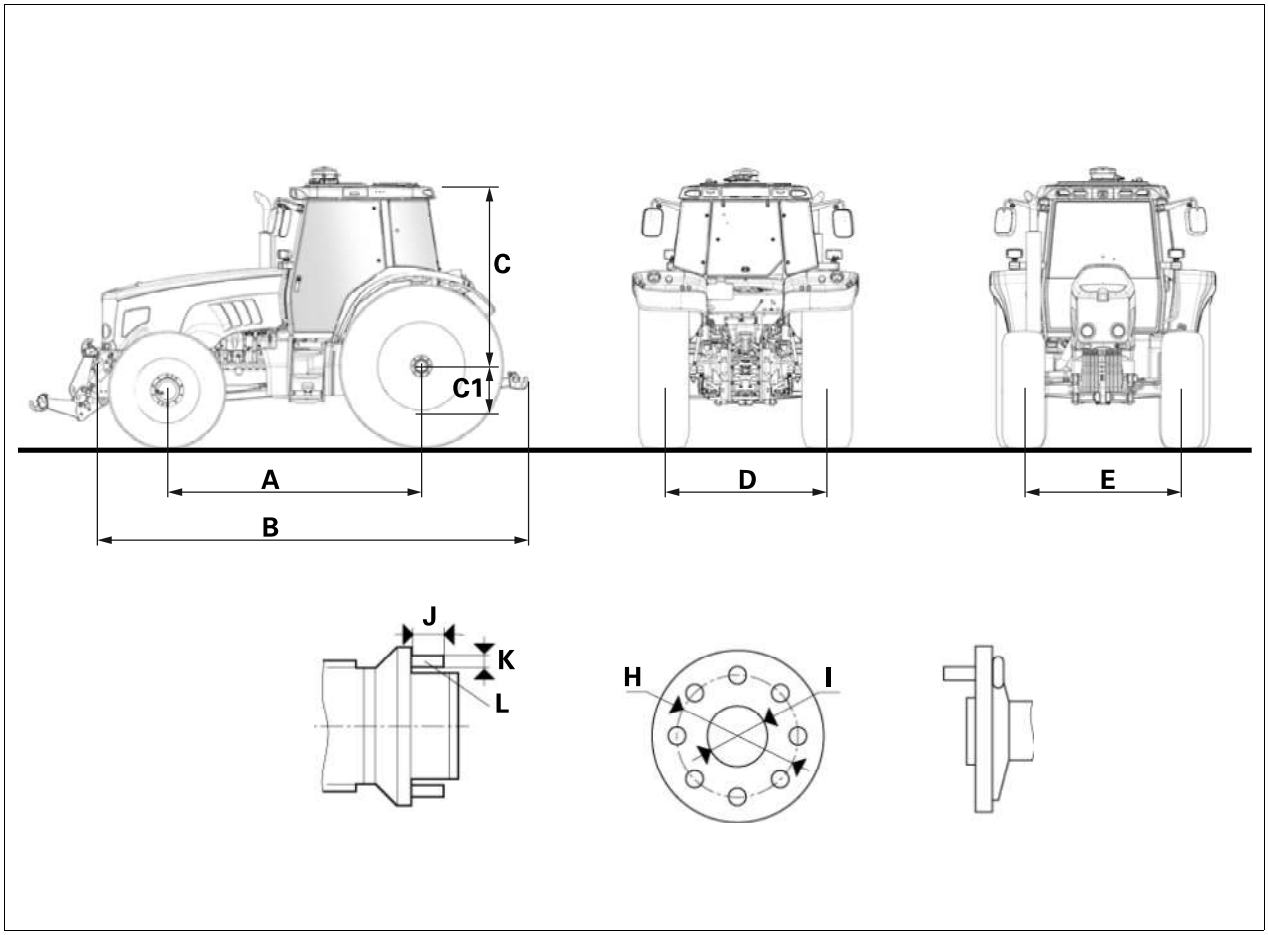

Fig. 1.

I020190

Reference	Measured specification	Dimension/weight
(A)	Wheel track	2874 mm (113.2 in)
(B)	Overall length with drawbars without front weights, max./min.	4939 mm (194.6 in)
(C)	Wheel axle height, standard roof Wheel axle height, high-visibility roof Wheel axle height, standard roof with Auto-Guide	2076 mm (81.8 in) 2099 mm (82.7 in) 2246 mm (88.5 in)
(C1)	Rear wheel axle height at the lowest point on the rear hitch	311 mm (12.3 in)
(D)	Rear minimum track width Rear maximum track width	1420 mm (100.5 in) 2168 mm (85.4 in)
(E)	Front minimum track width Front maximum track width	1436 mm (56.6 in) 2184 mm (86.0 in)
(F)	Weight at no load (with full tank, without additional weights)	6000 kg (13228 lb) to 7600 kg (16755 lb)

Rear axle

Reference	Measured specification	Dimension/weight
(G)	Distance between flanges Distance between flanges with short shaft, diameter 95 mm (3.7 in) Distance between flanges with long shaft, diameter 95 mm (3.7 in)	1716 mm (67.6 in) 1868 mm (73.6 in) - 2276 mm (89.7 in) 1868 mm (73.6 in) - 2868 mm (113.0 in)
(H)	Center-to-center distance between studs	
	– Flanged shaft	275 mm (10.8 in)
	– Straight shaft	335 mm (13.2 in)
(I)	Centering diameter	
	– Flanged shaft	221 mm (8.7 in)
	– Straight shaft	281 mm (11.1 in)
(J)	Stud length	
	– Flanged shaft	94 mm (3.7 in)
	– Flanged shaft with spacer	94 mm (3.7 in)
	– Straight shaft	53 mm (2.1 in) - 71 mm (2.8 in)
(K)	Stud diameter	M22 x 1.5
(L)	Number of studs (per side)	
	– Flanged shaft	8
	– Straight shaft	10

Front axle

Reference	Measured specification	Dimension/weight(1	
		Front axle 735	Front axle 740
(G)	Distance between flanges	1800 mm (70.9 in)	1784 mm (70.3 in)
(H)	Center-to-center distance between studs	275 mm (10.8 in)	335 mm (13.2 in)
(I)	Centering diameter	221 mm (8.7 in)	281 mm (11.1 in)
(J)	Stud length	35 mm (1.4 in)	50 mm (2.0 in)
(K)	Stud diameter	M18 x 1.5	M22 x 1.5
(L)	Number of studs (per side)	8	10

1. 4WD models

5.12.3 Attachment points

T008044

SisuDiesel engine

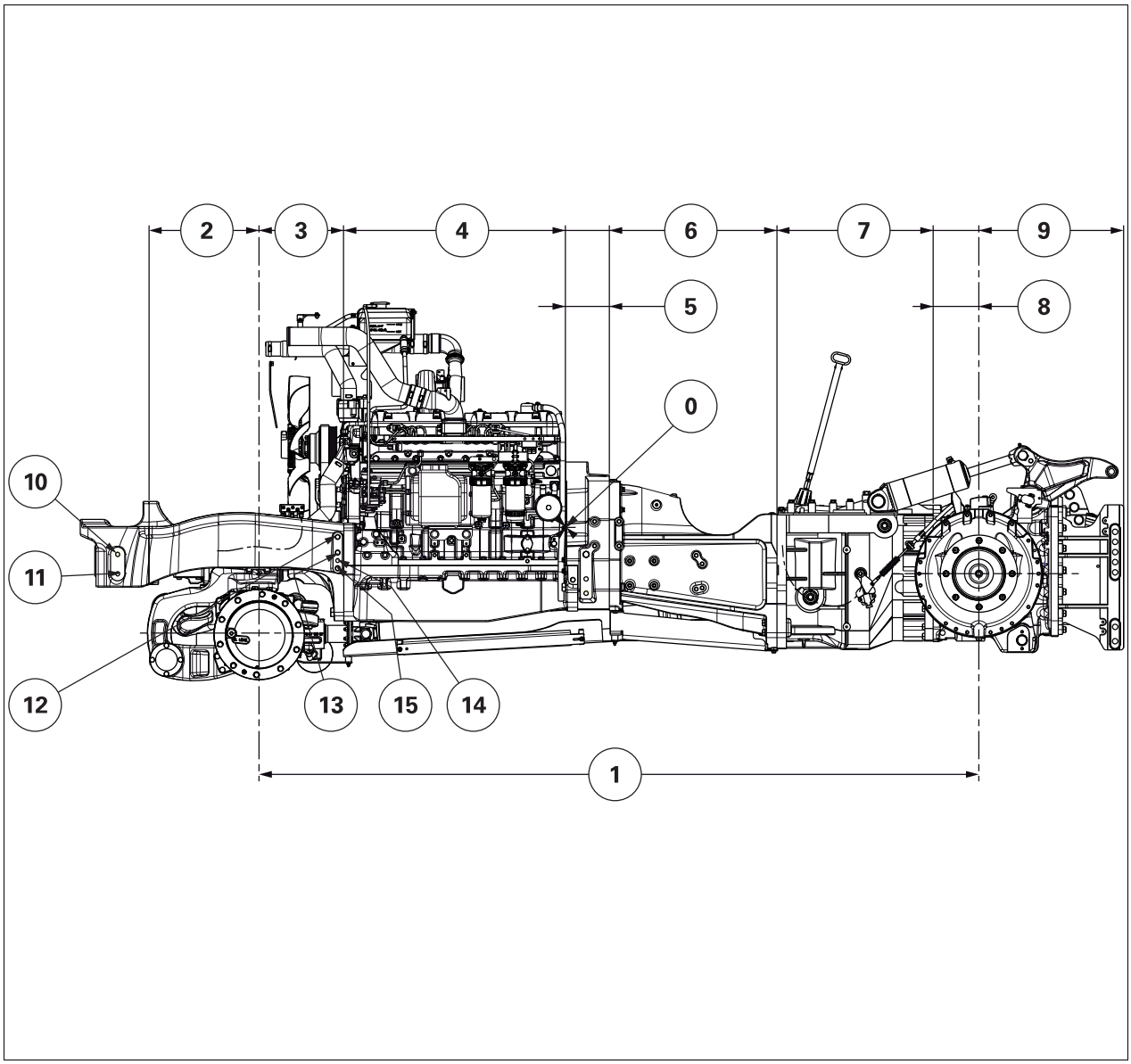

Fig. 2. I016450

NOTE: *Values x, y and z represent reference point 0 of the tractor.*

Reference		X	Y	Z
(1)	2875 mm (113.3 in)			
(2)	454 mm (17.9 in)			
(3)	356 mm (14.0 in)			
(4)	922 mm (36.3 in)			
(5)	81 mm (3.2 in)			
(6)	696 mm (27.4 in)			
(7)	650 mm (25.6 in)			
(8)	170 mm (6.7 in)			
(9)	672 mm (26.5 in)			
(10)	M20	-1758,2 mm (-69.3 in)	-315 mm (-12.4 in)	-45 mm (-1.8 in)
(11)	M20	-1758,2 mm (-69.3 in)	-315 mm (-12.4 in)	-125 mm (-4.9 in)
(12)	M20	-843,5 mm (-33.2 in)	-280 mm (-11.0 in)	27,5 mm (1.1 in)
(13)	M20	-843,5 mm (-33.2 in)	-280 mm (-11.0 in)	-37,5 mm (-1.5 in)
(14)	Ø 16 x 13	-843,5 mm (-33.2 in)	-280 mm (-11.0 in)	-70 mm (-2.8 in)
(15)	M20	-843,5 mm (-33.2 in)	-280 mm (-11.0 in)	-102,5 mm (-4.0 in)

6. Accessories

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6.1 Cab accessories

6.1.1 Cab accessories

T001018

– Radio fittings (loudspeakers, aerial and wiring).
– Radio
– Rear windshield wiper and washer.

6.2 Engine accessories

6.2.1 Engine accessories

T001019

– Engine block preheater (220 V or 110 V according to version)

6.3 Front axle and steering accessories

6.3.1 Front axle and steering accessories

T001021

– Front fenders.
– Front weights: 10/12 or 14 x 55 kg (121 lb)
– Center weight: 205 kg (452 lb)
NOTE: *The center weight is not compatible with the front PTO. Removal is not easy and the weight must remain fitted.*

6.4 Power take-off accessories

6.4.1 Power take-off accessories

T001022

– Power take-off: Consult your dealer for the different types available

6.5 Linkage accessories

6.5.1 Linkage accessories

T001023

– Rear linkage: Consult your dealer for the different types available

6.6 Auxiliary hydraulics accessories

6.6.1 Auxiliary hydraulics accessories

T001024

– Additional hydraulic spool valves
– Trailer brake

6.7 Electrical equipment accessories

6.7.1 Electrical equipment accessories

T001025

– Battery circuit breaker.

6.8 Wheels and tires accessories

6.8.1 Wheels and tires accessories

T001026

– Rear wheel weights: 1 to 4 external wheel weights

7. Appendix

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7.1 Conversion table

7.1.1 Conversion table

T001029

Length		
mm	x 0.0394	in
in	x 25.400	mm
m	x 3.2808	ft
ft	x 0.3048	m
km	x 0.6214	mile
mile	x 1.6093	km

Surface area		
mm^2	x 0.0016	in^2
in^2	x 645.16	mm^2
m^2	x 10.7639	ft^2
ft^2	x 0.0929	m^2
ha	x 2.4711	acre
acre	x 0.4047	ha

Volume		
cm^3	x 0.0610	in^3
in^3	x 16.387	cm^3
m^3	x 35.315	ft^3
ft^3	x 0.0283	m^3

Displacement		
ml	x 0.0338	fl oz (US)
fl oz (US)	x 29.5735	ml
l	x 0.2642	gal (US)
gal (US)	x 3.7853	l

Power		
kW	x 1.3410	HP SAE(1
HP SAE(1	x 0.7457	kW
kW	x 1.36	hp(2
hp(2	x 0.736	kW

1. US unit
2. Metric unit

Torque		
Nm	x 0.7375	lbf ft
lbf ft	x 1.3558	Nm
daNm	x 7.3756	lbf ft
lbf ft	x 0.1356	daNm

Pressure		
bar	x 14.504	psi
psi	x 0.0690	bar

Flow rate		
l/min	x 0.2642	gal/min (US)
gal/min (US)	x 3.7853	l/min
l/hr	x 0.2642	gal/hr (US)
gal/hr (US)	x 3.7853	l/hr
l/ha	x 0.1069	gal/acre (US)
gal/acre (US)	x 9.3531	l/ha

Speed		
kph	x 0.6214	mph
mph	x 1.6093	kph

Weight		
g	x 0.03527	oz
oz	x 28.3495	g
kg	x 2.2046	lb
lb	x 0.4536	kg
t	x 1.1023	US ton
US ton	x 0.9072	t

Temperature		
°C	(°C x 1.8) + 32	°F
°F	(°F - 32)/1.8	°C


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